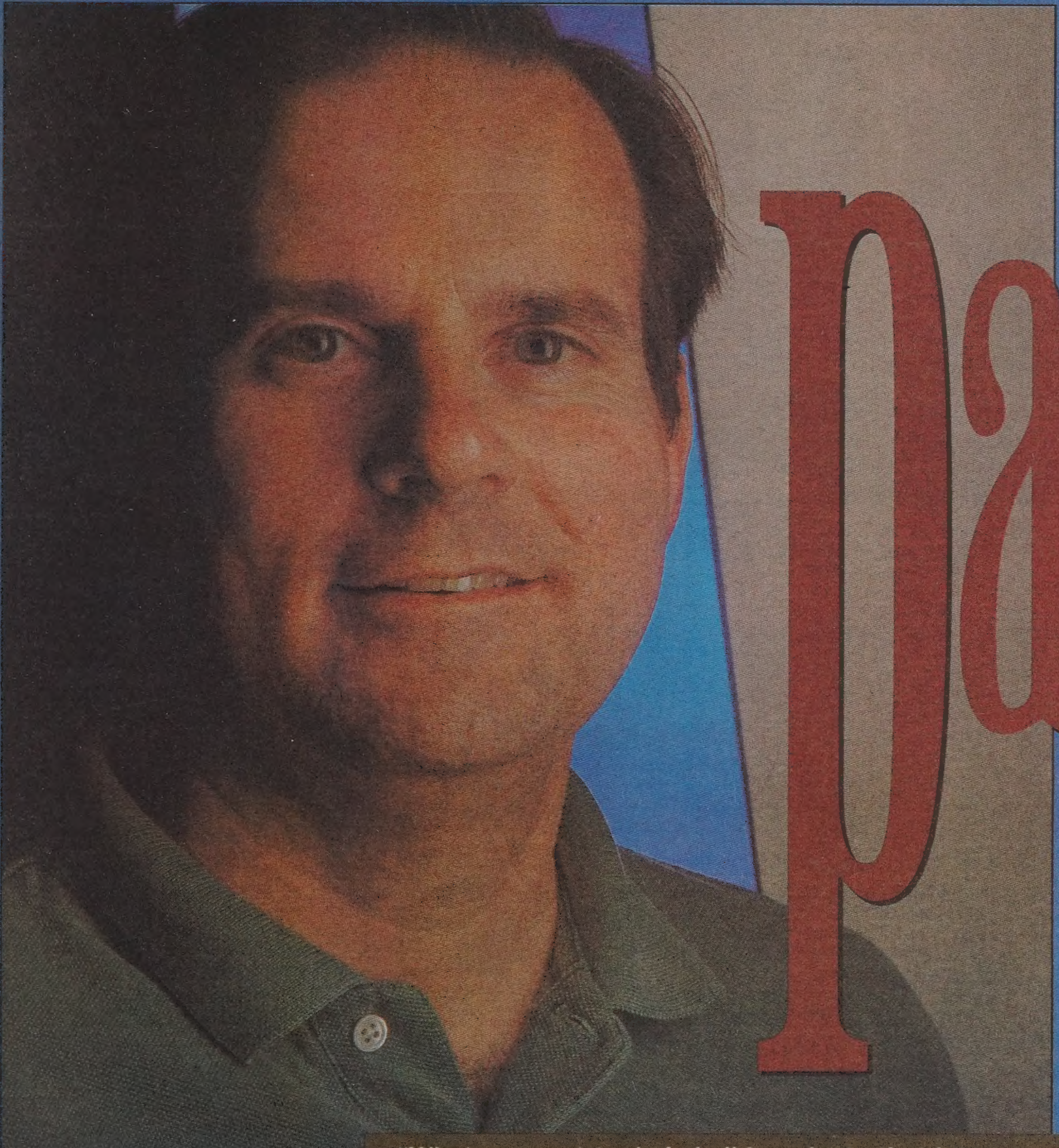
Southern California's Computer Magazine
July 20, 1992 • 98
FREE

MICROTIMES™



Paper: The New Computing Platform From Xerox

"What we want to do is build products that let you move documents across any platform in very simple ways. When you have this paper interface to fax machines, you can think of each fax machine as a sort of entry port to your computing world, wherever it is."
—Paul Ricci, President, Xerox Advanced Document Services

Story starts on page 52

Mac Meets PC...On An Amiga

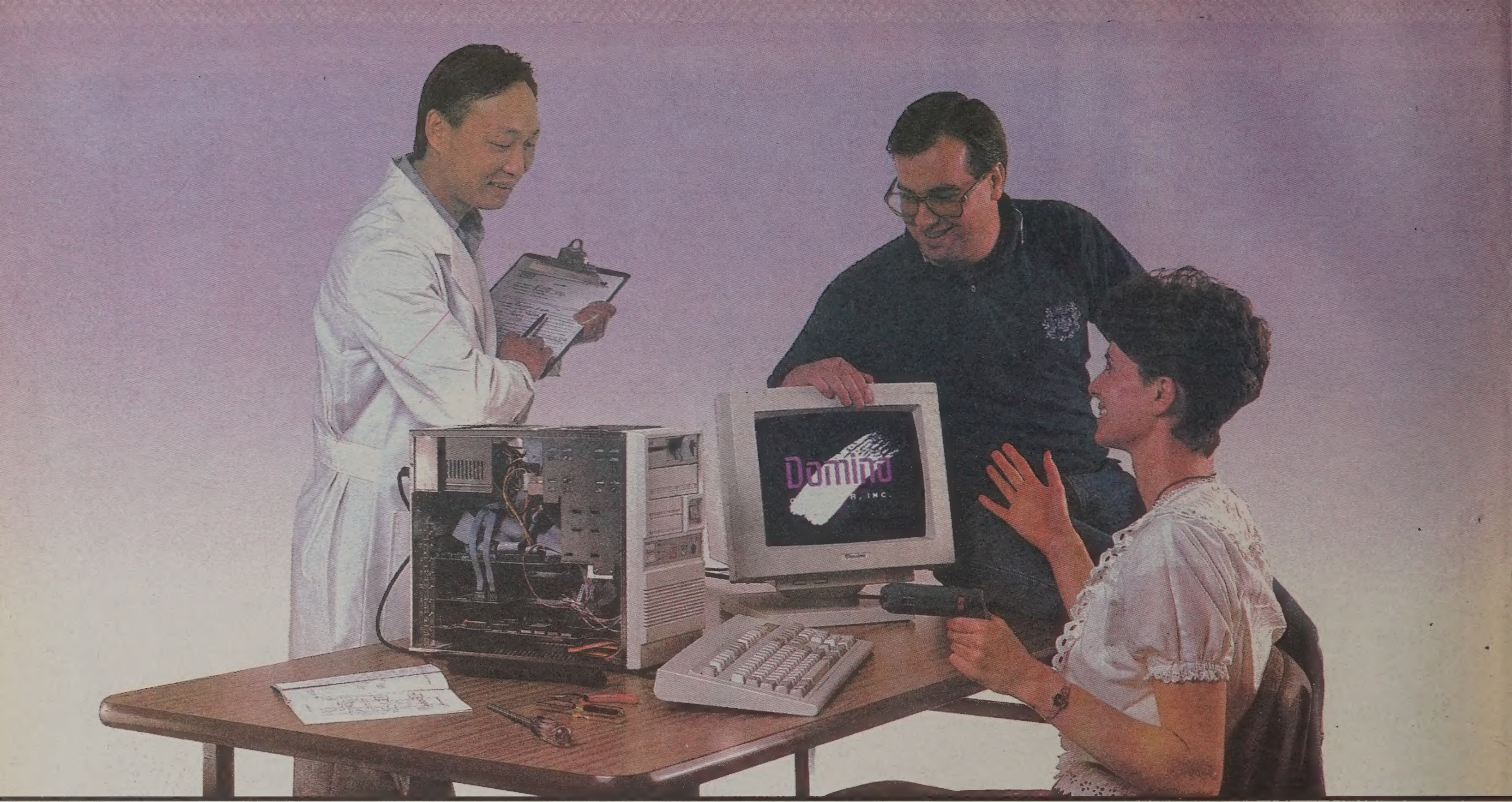
"One generally unnoticed aspect of this machine is its unique multiple platform capability. The Amiga is the only machine to successfully implement the capabilities of the top three consumer microcomputers in the market—PC, Mac, and Amiga—all in one box."

Story starts on page 78

DOS Meets UNIX...DESQview/X

"DESQview/X can link MS-DOS and UNIX computing platforms, allowing DOS applications, Microsoft Windows, and UNIX X-Windows applications to appear side-by-side on either a DOS- or a UNIX-based machine."

Story starts on page 64



Quickpath Evolution
486SX-25/64K
Made in USA
Upgradeable ZIF socket Motherboard
$430

DO IT YOURSELF - AND SAVE!

Install and Configure or Repair Your Own Computer – With Us!

SPECIAL
486SX/25MHz
$215
Quantity Limited

IT'S EASY– In a test done by Channel 7 News anchor David Louie, a 386/33 computer was built by Mr. Louie in our center in 1 hour 45 minutes. Visit one of our 25 convenient California locations and see what everyone is talking about!

SPECIAL PROMOTION: FREE Mouse Pad for everyone visiting our store!!!

BUILD-YOURSELF VGA SPECIAL

- Build a 386/40 MHz SVGA Monitor System with 1MB, 2 Floppy Drives, 40MB Hard Disk, 2 Serial, 1 Parallel, 1 Game Ports **$899**
  - Upgrade to 4MB Memory **$85**
  - Upgrade to 100MB Hard Disk **$120**

LAN Station:
Novell Lite w/Ethernet Card & Cable .... **$155 ea.**

SPECIAL BONUS: Build any 486 & get a Domino Tool Set

NEW!

TELETEXT DECODER CARD

Now you can receive STOCK PRICES, BUSINESS and WORLD NEWS, etc. on your computer without modem, phone line and fee. Data is broadcast to your PC antenna.

Come and see our Demo **$199**

For Power Users:
ELISA Local Bus EISA 486/33/256K (Made in USA) Motherboard **$1075**
ELISA Local Bus SVGA Card **$199**

We have 15 Northern California Stores
Call 510/226-1800 for store location.

MOTHERBOARDS

286 16 MHz Motherboard	$CALL
386SX 16 MHz Motherboard	$105
386SX 25 MHz	$125
386/40 MHz/64K cache	$205
486/33 MHz/64K cache	$550
486/50 MHz/256K cache	$925
486/50 MHz DX2/256K Cache	$750

IRVINE
17145 Von Karman Ave., Ste. 106
Irvine, CA 92714
714/252-8494
Corner of McGaw & Von Karman

PASADENA
1270 Lincoln Ave, Ste. 1600
Pasadena, CA 91103
818/398-0111
2 blks So. of Hwy 210 in Bus. Park of Pasadena Blvd.

YORBA LINDA
3890 Prospect Ave., Ste. C
Yorba Linda, CA 92686
714/579-0808
Imperial Hwy. & Prospect Between Rose & Bastanchury
OPEN SUNDAY

CANOGA PARK
22330 Sherman Way, C7
Canoga Park, CA 91303
818/340-7490
Hwy. 101 exit at Shoup Ave. Corner of Shoup & Sherman
OPEN SUNDAY

FOUNTAIN VALLEY
11247 Slater Ave.,
Fountain Vly, CA 92708
714/ 557-6666
First block East of Euclid

TORRANCE
2535 237th St., Ste. 102
Torrance, CA 90505
310/325-9701
1 block west of Crenshaw Blvd.

ACCESSORIES

1.2MB or 1.44MB Floppy Drive (Teac)	$57/55
Mini Vertical Case with P/S (UL)	$65
Super VGA Card (512K)	$45
Windows Accelerator Card (S3 chip)	$185
Super VGA Monitor (1024x768)	$249
Non-interlaced Super VGA Monitor	$375
Domino Mouse (3 button)	$13
Hard Disks	$CALL
Everex 120MB/240MB Tape Backup	$215/280
9600 Fax/Data Modem	$70
BitFax for Windows (Software for fax modem)	$54
Bitcom for Windows (Software for modem)	$54
Windows 3.1 Upgrade	$40
Brother 9-pin Printer	$145
Brother Portable Printer (HJ-100i)	$298
Everex Tempo LX 60MB Notebook	$1590
SONY Internal CD-ROM w/CD software	$450

Prices subject to change w/out notice. Not responsible for typographical errors.

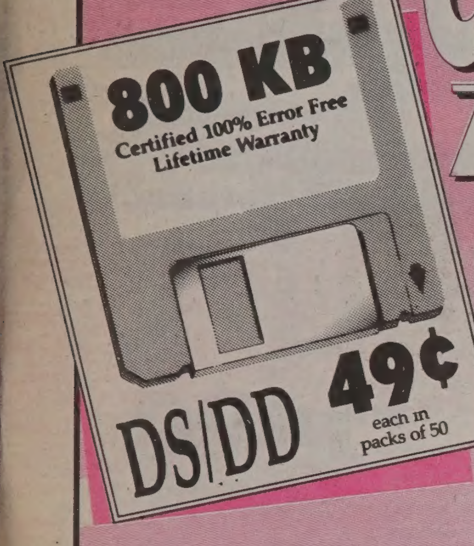
386, 486, SX are trademarks of Intel Corp.

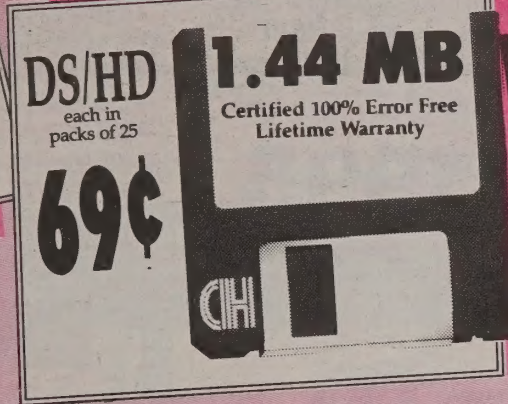
100% FINANCING AVAILABLE

Domino

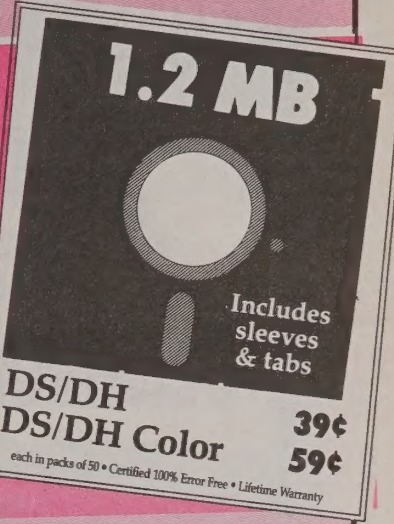
COMPUTER SELF SERVICE CENTERS

COMPUTER SYSTEMS AND ACCESSORIES


800 KB
Certified 100% Error Free
Lifetime Warranty
DS/DD 49¢ each in packs of 50


DS/HD each in packs of 25
69¢
1.44 MB
Certified 100% Error Free
Lifetime Warranty

360 KB
Includes sleeves & tabs
DS/DD 100 pc 25¢
DS/DD Color 39¢
each in packs of 50
Lifetime Warranty


1.2 MB
Includes sleeves & tabs
DS/DH 39¢
DS/DH Color 59¢
each in packs of 50 • Certified 100% Error Free • Lifetime Warranty

USA 286-16

- Intel Microprocessor
- 2 MB Ram
- 40 MB Hard Drive
- 1.2 & 1.44 Floppy Drive
- SVGA 14" Color Monitor (CTX .28 Dot Pitch)
- 1 MB ATI Video Card
- 101 Key Keyboard
- Windows 3.1 & Mouse
- Dos 5.0

1 Year Warranty Parts & Labor

$849

USA 486-33

- Intel Microprocessor
- 256K Cache
- 4 MB Ram
- 120 MB Hard Drive
- 1.2 & 1.44 Floppy Drive
- SVGA 14" Color Monitor (CTX .28 Dot Pitch)
- 1 MB ATI Video Card
- 101 Key Keyboard
- Windows 3.1 & Mouse
- Dos 5.0

1 Year Warranty Parts & Labor

$1599

USA 386-33

- Intel Microprocessor
- 64K Cache
- 4 MB Ram
- 120 MB Hard Drive
- 1.2 & 1.44 Floppy Drive
- SVGA 14" Color Monitor (CTX .28 Dot Pitch)
- 1 MB ATI Video Card
- 101 Key Keyboard
- Windows 3.1 & Mouse
- Dos 5.0

1 Year Warranty Parts & Labor

$1199

REPAIR CENTER

APPLE•AST•ALR
MAC•PANASONIC
EPSON•HP•IBM
COMPUTERS/PRINTERS/MONITORS

SOFTWARE SPECIALS

Excel 4.0 for Windows	$\$309^{95}$
Word 2.0 for Windows	319^{95}
MicroSoft "Project" for Windows	299^{95}
Aldus PageMaker Ver. 4.0	499^{69}
Word Perfect for Windows	314^{99}
MicroSoft Windows 3.1	89^{95}

HARDWARE SPECIALS

40/80/120 MB IDE HD	$195/265/299
1.2 & 1.44 Floppy Drive	69/65
1 MB Simm Module	49
External Zoom Fax Modem (Software Included)	99
CTX Super VGA Monitor .28 Dot Pitch	289^{95}
101 Enhanced Keyboard	49

AVERY LABELS

LASER • ALL TYPES

COMPUTER PAPER

CUT SHEET (8½x11)

5 Colors Pastel Paper 100 sht, 20#, Salmon	$\$3^{95}$
5 Colors Bright Paper 100 sht, 20#, Lilac Bond	$\$3^{95}$
5 Colors Pastel Envelopes #10, 50 pcs Yellow, Pink, Gray	3^{50}
Laser Cut Paper, 25 sht, Salmon	2^{85}

CONTINUOUS FORM (9½x11)

1000 Sheets	$\$9^{95}$
2500 Sheets	16^{95}
Colors - Pink, Blue	7^{95}
5 Colors Pastel Feed Paper 250 sht	$\$7^{99}$
Continuous Form Envelopes, #10, 50 pcs	7^{99}

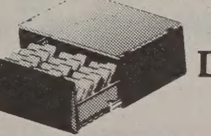
BACKUP TAPES & CARTS

DATA CARTRIDGES

Stock No.	Size	3M	SONY
DC600A	60MB	$\$20^{95}$	$\$19^{90}$
DC1000	20MB	14^{99}	n/a
DC2000 THETAMAT Formatted	40MB,3M	22^{90}	
DC2080	80MB	18^{99}	18^{91}
DC2120	120MB	21^{95}	20^{79}
DC2120 XIMAT Formatted	120MB,3M	31^{95}	
DC2120 RHOMAT Formatted	120MB,3M	31^{95}	
DC6150	150MB	23^{99}	22^{90}
DC6250	250MB	28^{95}	28^{19}
DC6320	320MB	29^{90}	28^{90}
DC6525	525MB	32^{90}	31^{90}

Save up to 2 HOURS on preformatted cartridges

STACKABLE DISK DRAWERS



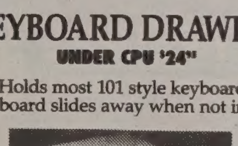
BD 203 3.5" Drawer, Holds 250	$\$29^{95}$
BD 205 5.25" Drawer, Holds 300	$\$29^{95}$

Both measure 13"Wx7.25"Hx14.5"D
Same Footprint!

KEYBOARD DRAWERS

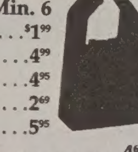
UNDER CPU $\$24^{95}$

Holds most 101 style keyboards
Keyboard slides away when not in use!



Under CPU/Monitor Drawer Fits under CPU or Monitor	$\$24^{95}$
Under Desktop Drawer Fits under Desktop	$\$15^{95}$
Stackable Disk Cabinets Holds 210-300	
WD3-Wood 3.5" Drawer, Holds 210 Measures 14.75"Wx5.25"Hx11" D—3 Drawers	$\$18^{95}$
WD5-Wood 5.25" Drawer, Holds 300 Measures 13"Wx7.25"Hx14.5"D—2 Drawers	$\$29^{95}$

PRINTER RIBBONS

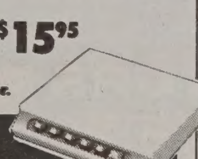


Printer Type	Min. 6
Apple Imagewriter II	$\$1^{99}$
Citizen GSX-140	4^{99}
Epson LQ-800	4^{95}
Okidata 192/193	2^{69}
Panasonic KSP 1524, 1624	5^{95}
Panasonic KSP 1124	4^{65}
Star Micro NX-1000	2^{94}

Call for your printer—100s in stock!

POWER PAD $\$15^{95}$

Controls up to 5 peripherals with lighted switches & master.



COLORADO BACKUP DRIVE MECHANISM

Internal Floppy Controller Mechanism.
Uses 2120 Cartridges

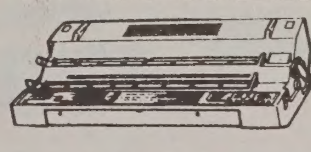
120MB	$\$194^{95}$
250MB	$\$299^{95}$

OPTICAL DISKS

650MB	$\$169^{95}$
CS-600HD	$\$16^{95}$

Data Cassettes	Maxell	Verbatim
CS-600 HD 60MB	$\$16^{95}$	$\$15^{95}$
CS-600 XD 150MB	$\$17^{95}$	$\$17^{50}$

PRINTING SUPPLIES HP ACCESSORIES



HP LaserJet Memory Cartridges for II, IID, IIP, III up to 4 MB

1MB	$\$99^{95}$
2MB	175^{95}
4MB	265^{95}
HP DeskJet Cartridge	17^{95} ea
HP DeskJet Ink Refills	19^{95}
PaintJet	27^{99}
PaintJet XL	25^{99}
PaintWriter	25^{99}
PaintWriter XL	25^{99}
HP Cartridge 5162A New High Capacity	29^{99}
PaintJet 51606	26^{99}
PaintJet Color	28^{95}
H.P. Laser Toner	79^{95}
Genuine Hewlett Packard Series I	79^{95}
Genuine Hewlett Packard Series II, III.	79^{95}
Genuine Hewlett Packard IIP	79^{95}
Genuine HP LaserJet III SI Cartridge Model 99291A	129^{95}
NEW—Recycled GRC HP LaserJet II, IID, III, IIID Cartridges	69^{95}
With EMPTY Cartridge	63^{95}
Canon BJI-642 Ink Cartridge for Canon BJI 300-330	28^{95}

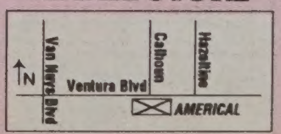
COVERS• COMPUTER BOOKS •MOUSE•HARDWARE•ACCESSORIES•CABLES•MEMORY CHIPS

CALL OR FAX US!
818-906-1132
FAX 818-906-1488
Hours: M-F 9-7
Sat 10-6

AMERICAL GROUP

AMERICAL GROUP COMPUTER PRODUCTS, INC.
14200 VENTURA BLVD. SHERMAN OAKS, CA 91423

RETAIL STORE



VISA MasterCard AMERICAN EXPRESS DISCOVER

DAV TECH CUTS ALL L.A. PRICES

One Store
Nationwide

COMPUTERS

AST®
COMPUTERS
CLEARANCE SALE!

All components are original AST parts.
** All units are remanufactured & carry 1 year AST warranty*

AST 386/25 Model 83V/4 Premium Exec Notebook*

Dual Voltage

- 80MB HD
- 4MB RAM
- 1.44MB Floppy Drive
- AST VGA Adapter
- AST Utility/Diagnostic Software
- MS DOS 5.0
- AC Adapter
- 115V/230V
- Carrying Case

$1995

AST 386SX/20 Premium Exec Notebook*

- 2MB RAM
- 40MB HD
- 1.44MB Floppy Drive
- AST Adapter
- AST Utility/Diagnostic Software
- MS DOS 5.0
- AC Adapter
- 115V/230V
- Carrying Case

$1490

PRINTERS

OKIDATA OL400

- 512K
- 4 PPM

$635

OKIDATA OL840

- 2MB RAM
- 8 PPM
- 300 DPI
- Parallel, Serial, Appletalk

$1575

LAPTOP

ZENITH ZSPORT 386SX/25

- 85MB HD
- 1.44 Floppy Drive
- 2MB RAM
- VGA

$2195

MONITORS

NEC MULTISYNC 4FG VGA/SVGA/XGA

- 15" Monitor
- 1024 x 768 Resolution
- .28 MM

$795

NEC MULTISYNC 4DS VGA/SVGA/XGA

- 16" Monitor
- 1024 x 768 Resolution

$595

LAPTOP

NEC LAPTOP ULTRALITE SX/20

- 60MB HD
- 1.44 Floppy Drive
- 2MB RAM

$2395

CALCULATORS

HP 48SX Calculator	$270
HP InfraRed Printer	99
HP 20S Calculator	39
HP 28S Calculator	175
HP 17BII Calculator	82
HP 19BII Calculator	135

AUTOMATIC FEEDERS

	Retail	Sale
C1751A ADF for ScanJet IIC	$695	$486
C1791A ADF for ScanJet IIP	695	486
C2060A IIIsi Automatic Envelope Feeder	495	340
33472A Optional Lower Cassette IIP/IIIP	195	149

SUPPLIES

Duplex Accessories	$485
Original Toner Cartridge	110
DeskWriter Font Collection Clearance	99
DeskJet Font Family	20% OFF

dav tech

"We will beat/match *ANY* advertised price!"

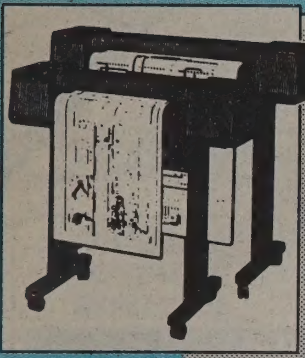
COMPUTER CENTER

6314 Hollywood Blvd. (at Vine), Los Angeles, CA 90028

(213) 463-3001
(800) 447-3331
FAX (213) 469-7255

Free parking in rear with validation. Prices subject to change without notice.

WE'RE DOING IT AGAIN! DAV TECH SAVES YOU MONEY!



HP PLOTTER BLOWOUT

Ask for 30 Day Test Drive

HP 7596C HP DRAFTMASTER RX+
- A-E size media
- Single or roll feed
- 3 year on-site warranty

HP 7576A DRAFTPRO EXL
- A-E size media
- 8 pen selection
- 3 year on-site warranty

C1633A HP DESIGNJET
- A-E, 24 & 36 inch rolls
- RS-232-C & parallel interface
- Monochrome inkjet technology
- Enhanced version
- HP JetDirect Card for Unix optional
- HPGL emulation
- New AutoCad driver Rel. 10 & 11

Free DeskJet Desk Clock

COMPUTERS

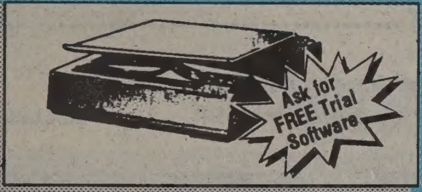
Vectra 386/20N Model 50 $1290
- 386SX 20 MHz
- 52MB hard disk
- 2MB RAM
- 3.5" hard disk floppy
- SVGA adapter

Vectra 386/16N Model 1 $950
- Diskless WorkStation
- 2MB RAM
- SVGA adapter

MONITORS

	Ind.	w/PC
HP 14" SVGA Monochrome	$240	$219
HP 14" SVGA Color	349	319
HP 14" Ergonomic SVGA	490	440
HP 40MB Tape Back Up	**$540**	**$490**
HP 120MB Tape Back Up	**640**	**590**

SCANNERS



Ask for FREE Trial Software

SCANJET IIP
- 300 DPI
- 8Bit gray scale scanner
- Document Feeder optional
- Apple compatible

$895

SCANJET IIC
- Color
- 400 DPI or 800 DPI enhanced resolution
- 4 bit or 8 bit gray scale
- 24 bit color
- 15 seconds per page

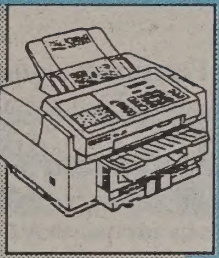
$1370

HP FAX MACHINES

HP LASERJET FAX
- Connects & prints on your LaserJet
- 40 autodial stations
- Fax up to 50 files up to 50 destinations
- 256KB memory buffer (13 pages)
- 1 Yr. warranty

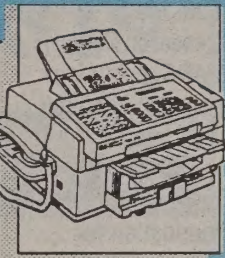
$895

Free fax stand and toner with every purchase



HP LASERJET FAX 200
- 12 page memory
- 100 sheet paper capacity
- Broadcasting & polling
- Speed dialing
- Stand alone fax

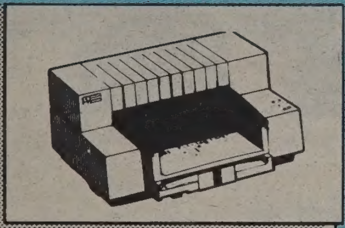
$995



HP LASERJET FAX 310
- 28 page memory upgradable to (30, 60, 120)
- Broadcasting to 100 locations
- Delayed dialing/speed dialing to 100 locations
- Confidential mailbox
- 512KB standard
- 1 yr warranty, overnight exchange

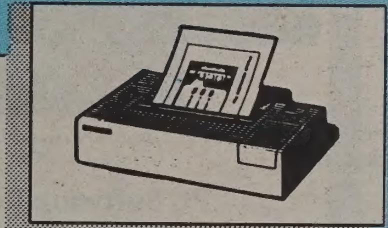
$1290

HP PRINTER BLOWOUT



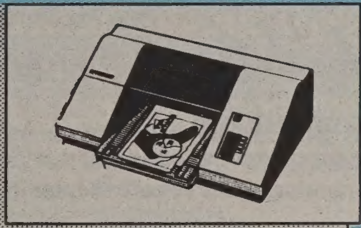
HP DESKJET/DESKWRITER
(IBM) (MAC)
- Plain paper or transparency
- Laser quality
- Built-in scalable fonts
- 300 dpi Resolution
- 3 year warranty
- Including cable, paper

$390



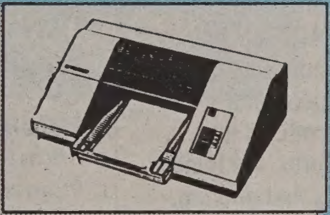
HP PAINTJET/PAINTWRITER
(IBM) (MAC)
- A size media
- 330 different shades
- Paper & transparency media
- AppleTalk built-in for Apple users

$690



HP PAINTJET XL/PAINTWRITER XL
(IBM) (MAC)
- A & B size media
- 180 DPI resolution
- 330 different shades of color
- Paper & transparency
- AppleTalk for Mac users

$1640

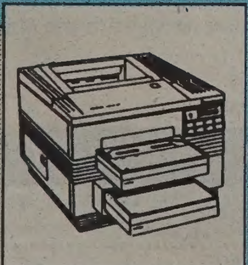


HP PAINTJET XL/ 300 DPI

$2200

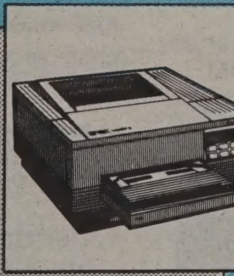
- Laser quality color output
- Parallel & Serial or Appletalk HP-GL2 built-in
- Brilliant CAD & Technical output
- Aptron SCO & Ethernet twist available

LASERJET PRINTERS



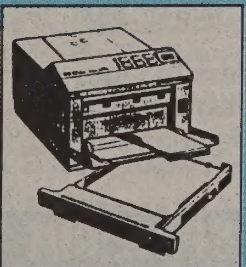
HP LASERJET IIIsi
- 17 pages per minute
- 2 trays, 500 sheets each tray
- Scalable fonts
- JP PCL, HP-GL/2 built-in

NOW IN STOCK Guaranteed!



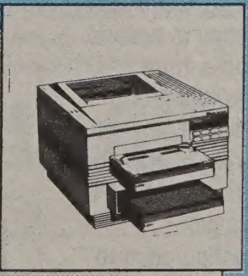
HP LASERJET III
- 8 pages per minute
- Faster graphics printing
- Built-in scalable typefaces
- PCL 5 printer languages
- Including paper, cable, toner

NOW IN STOCK



HP LASERJET IIIP
- 4 pages per minute
- Scalable fonts
- Most affordable laser printer

NOW IN STOCK (including toner cartridge)



HP LASERJET IIID
- 8 pages per minute
- 2 trays, 200 sheets each tray
- Res Enhc/Scal Fonts
- 1MB RAM

$2200

dav tech

"We will beat/match *ANY* advertised price!"

COMPUTER CENTER

6314 Hollywood Blvd. (at Vine), Los Angeles, CA 90028

(213) 463-3001
(800) 447-3331
FAX (213) 469-7255

HEWLETT PACKARD
Authorized Dealer and Service Center

Free parking in rear with validation. Prices subject to change without notice.

JULY 20, 1992 ISSUE #98
MICROTIMES

TABLE OF CONTENTS

A NOTE FROM THE EDITORS

Xerox has acquired a certain reputation for technological innovation over the years, particularly at its world-renowned Palo Alto Research Center. PARC technology has also acquired a certain reputation for forming the foundation for other people's successful startups.

Xerox's new Advanced Office Document Services division aims to take some of that PARC technology and turn it into successful products for Xerox. We think its first offering, PaperWorks, is a promising beginning.

While using paper as a computing platform may be the most radical notion in this issue, we're also happy to present some more "multiplatform" ideas, from Rich Grace's article on a unique Mac/PC/Amiga configuration to Lenny Bailes's discussion of DESQview/X. We hope you'll find the information useful.

—*ME*

NEWS & VIEWS

Letters 19

Industry Insight *By Paul Hoffman* 20
Intel's PCI Standard 20
Massive Price Drops In PC Market 20
Microsoft/IBM OS Agreement 24
High-Tech News From Japan 24
MicroTimes Stock Index 26

Realizable Fantasies *By Jim Warren* 30
The online presidential debate—an idea whose time has come?

Dvorak's Last Column *By John C. Dvorak* 158
If your trade show experience has been less than wonderful lately, taking Dvorak's handy quiz may help.

BUSINESS SOLUTIONS

Pens And Palmtops: An Overview
By Mitsu Hadeishi 38
Introducing a new column on the smallest personal computers.

LANs *By Yacco* 46
Beyond hardware sharing—the Wide Area Network.

Update: CompuExpo 62
MicroTimes is proud to be a sponsor of this global showcase for PC products, coming to Las Vegas in September.

FEATURES

What's New In DESQview/X? *By Lenny Bailes* 64
Quarterdeck's latest product brings the power of X Windows to your DOS machine.

BIOS Diversity *By Woody Liswood* 74
Fine-tuning your PC with Mr. BIOS.

Three Computers In One:
The Amiga Multiplatform Solution *By Rich Grace* 78
Mac, PC, and Amiga—all in one box.

PRODUCT SPOTLIGHT

Product Updates 83

New Products
UNIX Software
Spyglass Transform For DEC 83
Quorum Compatibility Engine 83
OnTrack RecoverEase 84

PC Software
Autodesk Graphic Impact For Windows 88
AutoCAD Release 12 88
KnowledgePoint DescriptionsWrite Now! 88

COVER STORY

Paper:

The Quarter-Ounce Portable Office From Xerox 52
By Mary Eisenhart
Cover and contents photos: Paul Winternitz
The latest innovation from Xerox PARC—paper that talks to your computer.

PC Software Review
By Design For Windows 96

CREATIVE TOOLS

Truckin' In Style *By Mary Eisenhart* 127
Silicon Graphics goes on tour with the Grateful Dead.

BMUG *By David Morgenstern* 130
Mac voice recognition, and other news from the Mac Developers conference.

RESOURCES

Calendar of Events 140
Computer Show: Pomona 140
3rd Annual Macintosh Summit 140

User Group Network 144

Classifieds 152

Index of Advertisers 156

Your First Computer
By Mike Markowitz 69
This month's installment: So You Want To Be A Programmer.

MICROTEK COMPUTERS

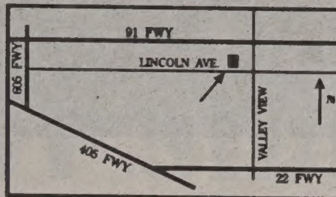
Low Price Leader

FINANCING AVAILABLE
BUSINESS LEASING OPPORTUNITIES
Educational Discounts
Dealer Inquiries Invited
PO, Govt, Corp. Welcome
Fax: (714) 761-1336

AUTHORIZED MICROSOFT RESELLER
NOW AVAILABLE WINDOWS 3.1!
Price Subject to
Change w/o Notice
Credit Cards Accepted
Bus. Hrs: Mon-Fri 9-7 & Sat 10-5 & Sun 1-5

OPEN 7 DAYS A WEEK!

CYPRESS



5721 LINCOLN AVE. #F
CYPRESS, CA 90630
(714) 761-0315

☐ **NOVELL NETWARE LITE (IN STOCK)...... $69/NODE**
☐ **LANTASTIC NETWORKING (ARTISOFT AUTHORIZED RESELLER)........................ $79/NODE**

STARTER SYSTEM
MicroTek 386SX-25 MHz

- AMI Bios
- Real Time Clock and Calendar w/Rechargeable Battery
- 2Mb RAM Installed
- 80387 Math Co-processor Socket
- 40Mb Hard Drive
- 1.2 Mb, 5¼" and 1.44 Mb, 3½" Floppy
- IDE 1:1 Dual FD/HD Controller
- AT I/O (2 Serials, Parallel, Game) Ports
- Mini Tower Case w/200W Power Supply
- 101 Enhanced Keyboard
- VGA Monitor and VGA Card
- Network Certified
- Operation Manual

$899

HOME/BUSINESS SYSTEM
MicroTek 386DX-40 MHz w/64K CACHE

- AMI Bios
- Real Time Clock and Calendar w/Rechargeable Battery
- 4Mb RAM Installed
- 80387 Math Co-processor Socket
- 80Mb Hard Drive
- 1.2 Mb, 5¼" and 1.44 Mb, 3½" Floppy
- IDE 1:1 Dual FD/HD Controller
- AT I/O (2 Serials, Parallel, Game) Ports
- Mini Tower Case w/200W Power Supply
- 101 Enhanced Keyboard
- Super VGA Monitor and Super VGA Card
- Network Certified
- Operation Manual

$1179

ENGINEERING SYSTEM
MicroTek 486DX-33 MHz w/256K CACHE

- AMI Bios
- Intel CPU 80486DX-33MHz w/Built-in Math Co-processor & 8K Cache
- 4Mb RAM Simm Module Installed (Expandable to 32Mb)
- Real Time Clock and Calendar w/Rechargeable Battery
- 120Mb Hard Drive
- 1.2 Mb, 5¼" and 1.44 Mb, 3½" Floppy
- IDE 1:1 Dual FD/HD Controller
- AT I/O (2 Serials, Parallel, Game) Ports
- Tower Case w/230W Power Supply
- 101 Enhanced Keyboard
- Super VGA Multisync Non-Interlace Monitor
- 1Mb Super VGA Card
- Network Certified
- Operation Manual

$1649

MicroTek 486DX-50 MHz w/256K Cache $2059

• MicroTek 386SX-16 MHz BASIC SYSTEM

- Real Time Clock and Calendar w/Rechargeable Battery
- 1Mb RAM Installed (Expandable to 16Mb)
- 80387 Math Co-processor Socket
- 1.2 Mb, 5¼" or 1.44 Mb, 3½" Floppy
- IDE 1:1 Dual FD/HD Controller
- AT I/O (2 Serials, Parallel, Game) Ports
- Mini Tower Case w/200W Power Supply
- 101 Enhanced Keyboard
- Network Certified
- Operation Manual

$319

MicroTek 386SX-25 MHz $339

• MicroTek 386DX-33 MHz w/64K CACHE BASIC SYSTEM

- Real Time Clock and Calendar w/Rechargeable Battery
- 1Mb RAM Installed (Expandable to 32Mb)
- 80387 Math Co-processor Socket
- 1.2 Mb, 5¼" or 1.44 Mb, 3½" Floppy
- IDE 1:1 Dual FD/HD Controller
- AT I/O (2 Serials, Parallel, Game) Ports
- Mini Tower Case w/200W Power Supply
- 101 Enhanced Keyboard
- Network Certified
- Operation Manual

$419

MicroTek 386DX-40 MHz w/64K Cache... $429

• MicroTek 486-33 MHz 256K CACHE BASIC SYSTEM

- Intel CPU 80486DX-33 MHz w/Built in Math Co-Processor & 8K Cache
- 4Mb RAM Simm Module Installed (Expandable to 32Mb)
- Real Time Clock and Calendar w/Rechargeable Battery
- 1.2 Mb, 5¼" or 1.44 Mb, 3½" Floppy
- IDE 1:1 Dual FD/HD Controller
- AT I/O (2 Serials, Parallel, Game) Ports
- Full Tower Case w/250W Power Supply
- 101 Enhanced Keyboard
- Network Certified
- Operation Manual

$929

MicroTek 486DX-50 MHz w/256K Cache .. $1199

• MicroTek EISA 486DX-33 MHz w/256K CACHE BASIC SYSTEM

- Intel CPU 80486DX-33 MHz w/Built in Math Co-Processor & 8K Cache
- 4 Mb RAM Simm Module Installed (Expandable to 32Mb)
- Real Time Clock and Calendar w/Rechargeable Battery
- 1.2 Mb, 5¼" or 1.44 Mb, 3½" FLoppy
- IDE 1:1 Dual FD/HD Controller
- AT I/O (2 Serials, Parallel, Game) Ports
- Full Tower Case w/250W Power Supply
- 101 Enhanced Keyboard
- Network Certified
- Operation Manual

$1469

MicroTek EISA 486DX-50 MHz w/256K Cache $1779

MONTHLY SPECIALS!!!

Memory

Simm 1Mbx9-70ns	$34
Simm 256Kx9-70ns	$15
DRAM 44256-80ns	$6.7
DRAM 41256-80ns	$1.7
DRAM 4464-100ns	$2.5
Simm 4Mbx9-80/70ns	$129
Call For Other Memory Need!!!	

Mother Boards

386SX/16/25MHz w/CPU	$129/$149
386/33/40MHz 64K Cache w/CPU	199/$219
486/33MHz 64K Cache w/CPU	$549
VEGA 386DX-33/40MHz w/64K Cache (US Made)	$299/$319
VEGA 486DX-33MHz w/64K/256K Cache (US Made)	$589/$639
VEGA 486DX-50MHz w/256K Cache	$949
VEGA 486DX-50MHz w/256K Cache EISA	$1359

Modem & Fax

Internal 2400 Baud Modem	$49
External 2400 Baud Modem	$89
Int. Send/Receive Fax Modem	$89
Ext. Send/Receive Fax Modem	$149
Zoom 9624 FC Internal Send/Receive Fax Modem	$119
Zoom 9624 FX External Send/Receive Fax Modem	$159
Zoom 9624 FC Internal Send/Receive Fax Modem For Windows	$169
Zoom 9624 FX External Send/Receive Fax Modem For Windows	$199

Printers

Citizen 200GX	$179
Citizen 130GSX	$259
Citizen 140GSX + Plus	$319
Citizen 145GSX	$419
HP Deskjet 500 Printer	$399
HP Laserjet IIP w/toner	$799
HP Laserjet IIIP w/Toner	$995
HP Laserjet III w/Toner	$1495
Memory Upgrade & Card	CALL

UPGRADE OPTIONS

Hard Drives

Seagate 351A/X IDE, 40MB	$209
Conner CP3004 IDE 40Mb	$219
Maxtor 7080A IDE 80Mb	$279
ConnerCP-30084 IDE 80Mb	$279
Maxtor 7120A IDE 130Mb	$319
Conner CP30104 IDE 120Mb	$319
Conner CP30174 IDE 170 Mb.	$379
Conner 3204F IDE 200Mb	$519
Maxtor LXT-213a IDE 213Mb	$519

Monitors

14" Flat Screen Amber	$99
Samsung 640x480 VGA	$219
Unitech 1024x768 SVGA .28 DPI Low Emission	$285
Shamrock 1024x768 SVGA .28 DPI	$285
Shamrock 1024x768 SVGA .28 DPI Multisync Non-Interlaced	$329
Viewsonic 6 1024x768 SVGA Non-Interlaced	$359
NEC Multisync 15" 4FG AccuColor Non-Interlaced	$769

One Year Warranty on Parts & Labor

PRODUCT-ORIENTED TABLE OF CONTENTS

As a service to our readers, we offer this alternative table of contents, with the information organized by product and machine type.

PCS

Paper: The Quarter-Ounce Portable Office From Xerox 52
By Mary Eisenhart
The latest innovation from Xerox PARC—paper that talks to your computer.

Update: CompuExpo 62
MicroTimes is proud to be a sponsor of this global showcase for PC products, coming to Las Vegas in September.

What's New In DESQview/X? 64
By Lenny Bailes
Quarterdeck's latest product brings the power of X Windows to your DOS machine.

BIOS Diversity 74
By Woody Liswood
Fine-tuning your PC with Mr. BIOS.

New Products:
PC Software

Autodesk Graphic Impact For Windows 88
AutoCAD Release 12 88
KnowledgePoint DescriptionsWrite Now! 88

PC Software Review

By Design For Windows 96

UNIX

Truckin' In Style 128
By Mary Eisenhart
Silicon Graphics goes on tour with the Grateful Dead.

New Products
UNIX Software

Spyglass Transform For DEC 83
Quorum Compatibility Engine 83
OnTrack RecoverEase 84

LAPTOPS/PORTABLES

Pens And Palmtops: An Overview .. 38
By Mitsu Hadeishi
Introducing a new column on the smallest personal computers.

MACINTOSH

BMUG 130
By David Morgenstern
Mac voice recognition, and other news from the Mac Developers conference.

LANS

LAN Column 46
By Yacco
Beyond hardware sharing—the Wide Area Network.

AMIGA

Three Computers In One
The Amiga Multiplatform Solution 78
By Rich Grace
Mac, PC, and Amiga—all in one box.

SATISFACTION GUARANTEED!

386SX-33
- ☐ 2MB memory
- ☐ 1.2MB & 1.44MB floppy drives
- ☐ 105MB hard drive 15ms
- ☐ 2 serial, 1parallel and 1 game ports
- ☐ Super VGA card "1024x768" w/1MB
- ☐ 14" Super VGA monitor "1024x768"
- ☐ Enhanced 101 keyboard
- ☐ Microsoft DOS 5.0

$999.00 *Lease for $40*

Same configuration as above:	
386DX-25MHz	$1099.00
386DX-33MHz w/64k cache	$1139.00
UPGRADES:	(ADD)
From 2MB to 4MB RAM	$60.00
120MB hard drive	$79.00
175MB hard drive	$199.00
213MB hard drive	$259.00
Windows 3.1 & Mouse	$59.00

HARD DRIVES

CONNER	
CP3000 *40MB 25ms, IDE*	$179.00
CP30084E *84MB 19ms, IDE*	$235.00
CP30174A *175MB 17ms, IDE*	$375.00
Maxtor	
MX7120A *120MB 15ms, IDE*	$319.00
MX7213A *213MB 15ms, IDE*	$489.00
MX340A *320MB 12ms, IDE*	$859.00
Talon	
TL3101A *105MB 16ms, IDE*	$279.00
TL3062A *120MB 16ms, IDE*	$299.00
FUJITSU	
M2623T* *420MB 12ms, IDE*	$999.00
M2623S* *425MB 12ms, SCSI*	$999.00
M2624T* *513MB 12ms, IDE*	$CALL
M2624S* *520MB 12ms, SCSI*	$CALL

** 2 years warranty*

486DX-33
- ☐ 4MB memory, 64k cache
- ☐ 1.2MB & 1.44MB floppy drives
- ☐ 213MB hard drive 15ms
- ☐ 2 serial, 1parallel and 1 game ports
- ☐ Super VGA card "1024x768" w/1MB
- ☐ 14" Super VGA monitor "1024x768"
- ☐ Enhanced 101 keyboard
- ☐ Microsoft DOS 5.0

$1699.00 *Lease for $65*

Same configuration as above:	
486DX2-50MHz	$1899.00
486DX-50MHz	$1999.00
UPGRADES:	(ADD)
From 4MB to 8MB RAM	$120.00
600MB CD-ROM	$269.00
2400Baud modem	$45.00
Colorado 120 tape back-up	$199.00
14" Non-Interlaced monitor	$99.00

Our Committment:
Our intent is to provide the building blocks for optimal computer solutions, served to you with EXCELLENCE in quality at the lowest price possible. We extend an invitation to you to call one of our sales representatives to learn even more about CELL.

NO SURCHARGE
MasterCard VISA

Corporate, Government P.O.s, and Dealer inquiries welcome.
Prices subject to change without notice.
1 year warranty on parts & labor.
Lease based on 36 months.

CELL MICRO™
A CIRCUIT ELECTRONICS LABORATORY COMPANY

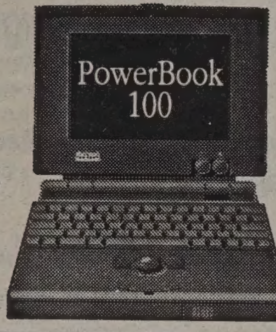
714/830-CELL
2 3 5 5

22600-B Lambert # 805 • El Toro, CA 92630 • FAX. 714/830-3712

TWO NEW LOCATIONS!
UNIVERSAL CITY & WEST SIDE

Apple® Macintosh® Powerbook™ 100

Runs Virtually All Macintosh Software



Authorized Dealer

Includes:
- The Powerbook CPU
- With 2 Meg RAM
- And 20 Meg Hard Drive
- And Standard Size Keyboard
- And Trackball
- And Built-In Networking Filesharing
- System 7 Capable and Fully Portable

$X88

OPCODE EZ VISION

Music Sequencer For Macintosh

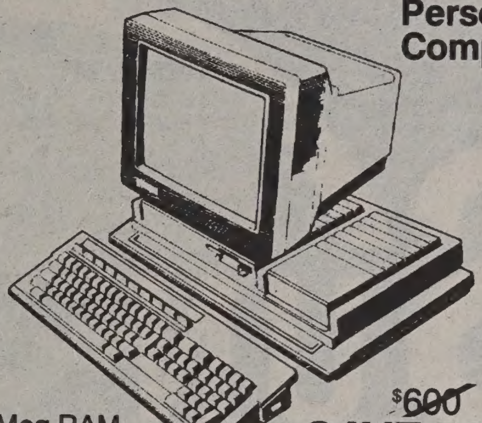
~~$150~~

$75

SAVE 50%!

ATARI® 1040 STe

Personal Computer



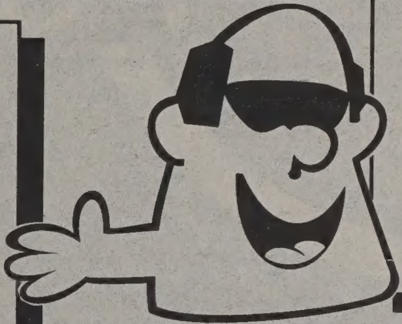
- 1 Meg RAM
- MIDI In/Out
- 3.5″ Floppy Drive
- Mouse and Keyboard
- Stereo Digital Sound
- Color Monitors Available
- Hard Drives Available
- Full Warranty NAMM Show Demo

~~$600~~

SAVE 50%!

$299

With Purchase of Tiger Cub for Only $99



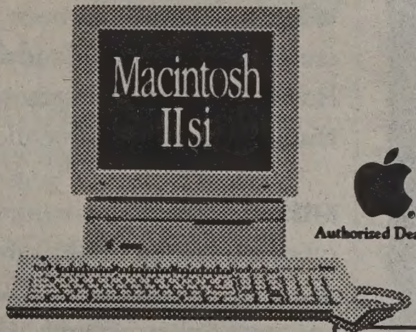
DR T's TIGER CUB

Music Sequencing Software

Now Just $99!

Apple® Macintosh® IIsi

Excellent Choice for Business, Education or Home



Authorized Dealer

Includes:
- The IIsi CPU
- With 3 Meg RAM
- 40 Meg Hard Drive
- And 3.5″ SuperDrive™
- And Mouse
- And Stereo Sound Jack
- Monochrome and Color Monitors Available
- System 7 Capable

$1888

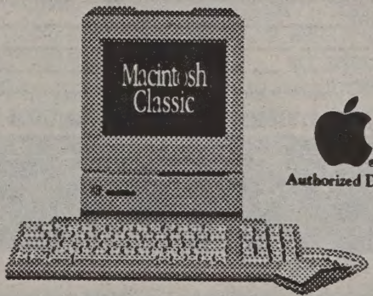
ROLAND PC-100

MIDI Music Keyboard

$29

Apple® Macintosh® Classic®

Includes:
- The Classic CPU
- With 1 Meg RAM
- Built-In Monitor
- 3.5″ Floppy Drive
- Mouse
- Keyboard
- System 7 Capable



Authorized Dealer

All For $777

GOODMAN MUSIC

MC,
Visa,
AX,
Optima,
Instant
Credit

UNIVERSAL CITY (213) 845-1145 or (818) 760-4430
3501 Cahuenga Blvd. West
(Lankershim Exit off Hwd. Fry. turn left)
SHERMAN OAKS (818) 784-6908
4631 Van Nuys Blvd. (2 blocks N. of Ventura Blvd.)
WEST COVINA (818) 967-3767
544 Azusa Ave. (1 block N. of 10 Freeway)
WEST SIDE (310) 558-5500
4204 S. Sepulveda Blvd. (Culver Exit off 405)
LONG BEACH (310) 429-9795
4145 Viking Way
(Near intersection of Bellflower & Carson)
ANAHEIM (714) 520-4500
1676 W. Lincoln (Euclid)

RIGHTSIZING
Anaheim '92

SUN
SOSE ™
OPEN SYSTEMS
EXPO

SUN OPEN SYSTEMS EXPO '92
ANAHEIM CONVENTION CENTER, JULY 20 - 22, 1992
For More Information on attending or exhibiting, complete and return this coupon or call
1-(800) 727-EXPO OR (512) 331-7761 • FAX (512) 331-3950

*NAME*__________
*COMPANY*__________
*STREET*__________ ☐ *Attendee*
*CITY, STATE, ZIP*__________
*TELEPHONE*__________ ☐ *Exhibitor*

SUN OPEN SYSTEMS EXPO, 12343 Hymeadow Drive, Bldg. 3, Austin, Texas 78750

Sponsored by
The Sun Observer
in cooperation with
The Sun User Group
and Sun Microsystems

A.J. COMPUTER SUPPLIES

WHOLESALE TO THE PUBLIC
UP TO 75% OFF SUGGESTED RETAIL

SCANNERS	SUGGESTED RETAIL	A.J.'S SPECIAL
LOGITECH HAND HELD SCANNERS: IBM		
✓Logitech Scanman Plus, 400 DPI 4" Wide, 32 Shades of Gray	~~$195~~	$85
✓Logitech Scanman Plus, 400 DPI Bundled W/ Catchword Intelligent OCR	~~$395~~	$135
✓Catchword Intelligent OCR for Logitech Scanman+	~~$160~~	$55
SCANNERS FOR MAC:		
✓Logitech Scanman Model 32 for MAC	~~$405~~	$199
✓Data Copy Sheet Feed—Full Page Scanner for MAC Including Accutex, OCR & Graphics Package	~~$795~~	$225

ATTN: ALL AST COMPUTER USERS:
We Convert Your AST 286 System To 386/20
Including: 2 MEG RAM FOR ONLY $495

MISCELLANEOUS	SUGGESTED RETAIL	A.J.'S SPECIAL
✓AST 101 AT Keyboard	~~$49~~	$19.95
✓AST RAMpage+ 286 Expanded Memory—Expandable up to 8 Meg	~~$295~~	$65
✓AST FAST RAM w/512K	~~$295~~	$65
✓AST FAST RAM w/1 Meg	~~$325~~	$85
✓AST EGA BOARD—w/256K	~~$99~~	$35
✓AST POSTSCRIPT BOARD	~~$995~~	$395
✓AST TURBO LASER BOARD	$496	$195
✓✓LOGITECH 2-BUTTON HI RESOLUTION MOUSE, 400 DPI, CURVE (LIKE MICROSOFT) Including Driver for DOS & Windows	~~$76~~	$15

ATTN DEALERS: Quantity 10+...$14 100+...$12 1000+...$9.95
LARGE QUANTITY IN STOCK!!! Moving Fast, Hurry Up! First Come, First Served.

5122 Bolsa Ave., Suite 107
Huntington Beach, CA 92649
(714) 895-5802
FAX: (714) 897-9498

HOURS:
M–F 9 a.m. to 5 p.m.
Sat. & Sun. @ the Computer Swapmeet nearest you!

CONTRIBUTORS

Lenny Bailes is a teacher, writer, and consultant who lives and works in San Francisco. He can be reached via the Internet at *jroe@well.sf.ca.us.*

John C. Dvorak is a columnist, book author, software publisher and radio talk show host. He goes to a lot of trade shows and makes the most of it.

Rich Grace is a freelance writer based in Huntington Beach.

Mitsu Hadeishi, whose column on pen-based and palmtop computers starts this issue, started using a Commodore PET fifteen years ago and has been involved with computers ever since. In 1989, he started a San Diego company, Open Mind, which is involved in interactive entertainment, neural network research, and object-oriented software development environments.

Paul Hoffman is an industry analyst who's been writing about microcomputer technology for ten years and is the author of several books on computer-related topics.

Woody Liswood has been writing about microcomputer hardware and software since 1980. He has also published a book on micro-based Human Resource Information Systems.

Mike Markowitz has written about games and other interesting subjects for us since our first issue. He works in the computer lab of a major Southern California university.

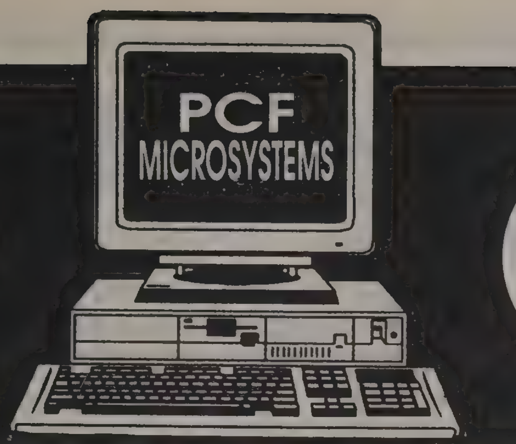
David Morgenstern is a BMUG volunteer and works in the library at San Francisco State.

Jim Warren, a man of many accomplishments in the computer industry over the years, recently chaired the First Conference on Computers, Freedom & Privacy. He also serves on the board of directors of Autodesk.

John Wolcott is a freelance writer in the editorial and hardware documentation area. He currently edits and publishes *The Intermod*, a Southern California amateur radio publication.

LAN columnist **Wayne A. Yacco** is a consultant and writes for many computer publications on a variety of subjects. He lives in Burbank.

AFFORDABLE
HIGH PERFORMANCE
HIGH QUALITY



SUPER DEAL!
COMPLETE 386SX/25
SYSTEM FOR ONLY
$995

386SX-25MHz
- 2MB RAM (80 ns)
- 1.2 & 1.4 FLOPPIES
- 64MB HARD DRIVE
- AT I/O IDE CONTROLLER
- SVGA COLOR CARD
- VGA 14" COLOR MONITOR
- 101 KEYBOARD
- DOS 5.0

$995

386DX-33MHZ 64K CACHE
- 4MB RAM (80 ns)
- 1.2 & 1.4 FLOPPIES
- 120MB HARD DRIVE
- AT I/O IDE CONTROLLER
- SVGA COLOR CARD (1MB)
- SVGA 14" COLOR MONITOR
- 101 KEYBOARD
- DOS 5.0/WINDOWS/MOUSE

$1395

486DX-50MHZ
- 4MB RAM
- 1.2, 1.4MB FLOPPIES
- 200MB HARD DRIVE
- SVGA CARD 1MB AND MONITOR (1024X768)
- 101 KEYBOARD
- FULL TOWER CASE
- DOS 5.0/WINDOWS/MOUSE

$2325

ALL SYSTEMS ARE:
- DOS, OS/2, UNIX, XNIX, NOVEL COMPATIBLE
- FCC CLASS B APPROVED
- BURNED-IN & TESTED FOR 48 HOURS
- ONE YEAR IN-HOUSE WARRANTY • 90 DAYS FREE ON-SITE SERVICE
- CUSTOM CONFIGURATION PLEASE CALL

MULTIMEDIA SYSTEM
- 386/33MHZ 64K CACHE
- 4MB RAM
- 120MB HARD DRIVE
- 1.2, 1.4MB FLOPPIES
- SVGA CARD (1MB) AND SVGA 14" COLOR MONITOR
- 101 KEYBOARD
- CREATIVE LAB'S MPC APPROVED MULTIMEDIA KIT
- CD ROM
- MIDI KIT
- SOUND BLASTER PRO
- WINDOWS 3.0 W/MM EXTENSION 1.0
- VOICE EDITOR II
- TALKING PARROT
- MMPLAY AND MORE CD SOFTWARE
- DOS 5.0/SERIAL MOUSE

$2425

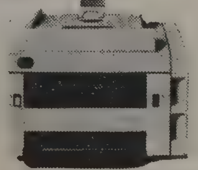
486DX-33MHZ 256K CACHE
- 4MB RAM (80 ns)
- 1.2 & 1.4 FLOPPIES
- 120MB HARD DRIVE
- AT I/O IDE CONTROLLER
- SVGA COLOR CARD (1MB)
- SVGA 14" COLOR MONITOR
- 101 KEYBOARD
- DOS 5.0/WINDOWS/MOUSE

$1875

IBM *Authorized Dealer*

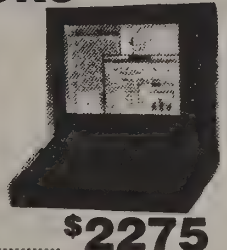
PS/1 Pro M2123
386SX-20MHz
- 2MB RAM EXPANDABLE TO 16MB
- 3 1/2" FLOPPY DRIVE
- BUILT IN VGA
- IBM 14" COLOR MONITOR
- IBM 101 KEYBOARD
- IBM EXPRESS-ONE YEAR WARRANTY

W/80MB HD/129MB HD
$1589/$1795



IBM LASER PRINTER (10PPM) W/ TONER $1379

NOTEBOOKS



Texas Instruments Travelmate 386WINSX/20MHz
80MB Hard Drive
4MB RAM
VGA Display 32 Shades of Gray
Thumbalina Mouse
Windows/DOS 5.0 .... **$2275**

Toshiba T3300 SL 386/25MHz
80MB Hard Drive
2MB RAM
6 Hour Battery
VGA 32 Shades of Gray
5.9 Pounds
DOS 5.0 .... **$2475**

Zenith 320 L 386/20MHz SL
VGA Display 32 Shades of Gray
60MB Hard Drive
2MB RAM
3.5 Floppy Drive
DOS 5.0 .... **$2475**

AST Premium Exec 386SX/25MHz
4MB RAM
60MB Hard Drive
VGA Display
DOS 5.0 .... **$1975**

NEC *Authorized Dealer*

POWERMATE 386/331
386DX-33MHz
- 4MB RAM EXPANDABLE TO 64MB
- NEC 3 1/2" FLOPPY DRIVE
- NEC 120MB HD/ w/IDE CONTROLLER
- INTEGRATED IMAGE SYNC & SVGA VIDEO (512)
- FOUR 16 BIT EXPANSION SLOTS
- TWO SERIAL, ONE PARALLEL
- DOS 5.0/WINDOWS 3.1
- NEC MULTI SYNC 2A MONITOR
- NOVELL, BANYAN AND VINES CERTIFIED

$2695

Silentwriter M95
6PPM, 2MB RAM
35 Adobe Fonts
Apple Talk Interface
$1399

NOTEBOOK PRINTERS

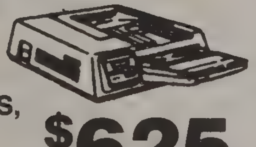
CITIZEN PN-48	$299
CANON BJ-10ex	$319
DICONIX 150+	$340

VGA MONITORS

640x480, .39 Color	$239
1024x768, .28 SVGA	$319
1024x768, .28 Non-Interlaced	$345

NEW NEC MONITORS ON SALE NOW

OKIDATA®



OL 400
LASER PRINTER
4PPM, 4 TYPEFACES,
17 FONTS
HP Emulation
200 Sheet Paper Tray
$625

MAJOR CROSS STREET BUNDY
11838 Pico Blvd.
Los Angeles, CA 90064
Hours: M-F, 9-7, SAT, 10-6

PC FACTORY

SALES & SERVICE
(310) 444-9003
FAX LINE: 444-9608

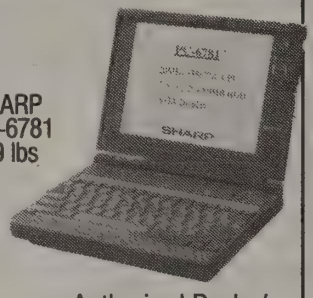
UNITEK
computer stores

12024 Wilshire Blvd.
West Los Angeles, CA 90025
FULL SERVICE CENTER
Open Monday-Friday
9:00am-7:00pm
Saturday 10:00am-4:00pm
• Corporate Accounts Welcome •

SALES & SERVICES DEPT.
TEL (310) 820-2400
FAX (310) 826-1455

SHARP®

NEWEST & LIGHTEST 386SL NOTEBOOK



SHARP
PC-6781
4.9 lbs

- 386SL-20 MHz (32 Bit)
- 1.44 Drive
- 80MB HDD (16.5 MSEC)
- Built in Trackball
- 2MB Ram 16K Cache
- 10" TRUE VGA Screen, 32 Shades
- IC STD Card Slot
- Lightest 386SL, 4.9 lbs only
- 11 x 8.5 x 1.6

Authorized Dealer/
Service Center

$1899
IN STOCK

SHARP®

NEWEST COLOR 386SL NOTEBOOK

Authorized Dealer/
Service Center

SHARP
PC-6881
COLOR
7.3 lbs.

- 386 SL-20 MHz (32 Bit)
- 80 MB HDD (16.5 MSBC)
- 8.4" TFT COLOR LCD with two fluorescent tube backlights
- 256 out of 262,144 Colors
- 2 MB Ram, 16K Cache
- Sophisticated Power Mgmt. for battery operation
- One built-in IC Card Slot
- Supports 4 Power-saving States
- Lightweight and lettersize (11" x 8.5" x 1.9")

$CALL

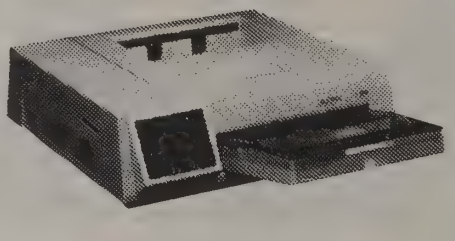
OKI OK!
OKIDATA OK!

OKIDATA®

AUTHORIZED SALES/SERVICE

OL-400

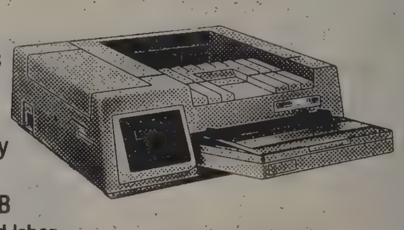
- 4 PPM Printing Speed
- HP Laserjet Series II Comp.
- Parallel Std. Interface
- 300x300 DPI Res.
- 200 Sheet letter size paper input tray
- Built-in HP Comp. Fonts Cards
- 512 RAM Std./Expandable to 2.5 MB
- 5 year LED head warranty, 1 year Parts and Labor
- Up to 6000 pages per month rated duty cycle



$589
w/toner

OL-830

- 8 PPM Printing Speed
- Adobe PostScript plus HP LaserJet Series II and Diablo 630 emulations
- Centronics parallel standard, RS-232c serial & AppleTalk interfaces optional
- 300x300 DPI Resolution
- 17 built-in Adobe fonts
- 26 built-in fonts/4 typefaces for emulations
- 200 sheet letter size paper input tray with adjustable manual feed
- Optional 2nd paper input mechanism & tray
- Auto-Emulation switching capability
- 2 MB RAM standard; expandable to 4.0 MB
- 5 year LED head warranty, 1 year parts and labor
- Up to 16,000 pages per month rated duty cycle



$1225
w/toner

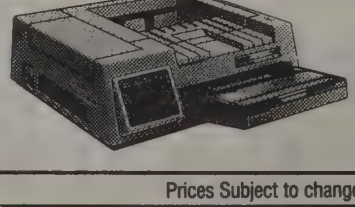
NEW

OL-810

HPII COMP.

$1029
w/toner

- 8 PPM Printing Speed
- HP LaserJet Series III, OL400, IBM ProPrinter IIIXL
- OKI Smoothing Technology™
- 300x300 DPI resolution
- 13 HP III compatible, scalable fonts
- 200 sheet letter size paper input tray with adjustable manual feed
- 1 MB Ram standard; expandable to 5 MB
- Full library of HP Compatible scalable font cards
- 5 year LED head warranty, 1 year parts and labor
- Up to 16,000 pages per month rated duty cycle



DOT MATRIX PRINTERS

OKI 184 TURBO	$219
OKI 320 9 PIN	315
OKI 321 9 PIN	425
OKI 390 24 PIN	425
OKI 391 24 PIN	569
OKI 393 24 PIN	895
OKI PM-3410 550LPS, 9 PIN	1285

★ LED PRINTERS ★

OKI 800	$855
OKI 840	1525

Prices Subject to change w/o notice. Limited Time/Qty.

UNITEK
computer stores

12024 Wilshire Blvd.
West Los Angeles, CA 90025
FULL SERVICE CENTER
Open Monday-Friday
9:00am-7:00pm
Saturday 10:00am-4:00pm
• Corporate Accounts Welcome •

SALES & SERVICES DEPT.
TEL (310) 820-2400
FAX (310) 826-1455

COMPAQ

LITE 386SL-20 40 HD	**$2549**
LITE 386SL-20 60/84 HD	**2999/3135**

Above w/2MB RAM, 1.44,
VGA 10" Screen

***

LITE 386SL-25 60 HD	**3225**
LITE 386SL-25 84/120 HD	**3625/4080**

Above w/4MB RAM, 1.44,
VGA 10" Screen

TEXAS INSTRUMENTS

TM2000 20MB	**$945**
TM3000 40/60MB	**1849/2179**
TM3000 80/120MB	**2499/2835**
TM3000-WINSX 60/80MB	**2499/2845**

4MB RAM, WINDOWs 3.0, 1.44 FLP

WINSX INCLUDE: 4MB RAM,
WINDOWS 3.0, 1.44 FLP

Authorized Dealer
All Accessories Available

NEC

★ Monitors ★

NEC 3FGX 15"	**$619**
NEC 4FG 15"	**749**
NEC 5FG 17"	**1299**
NEC 6FG 21"	**2799**

★ Notebooks ★

ULTRALITE 386SL/20 80 MB	**$2399**
ULTRALITE 386SL/20P 80 MB	**$2895**
ULTRALITE 386SL/25C 80 MB COLOR	**$4765**

ABOVE INC: 2MB, VGA, 1.44FD, DOS 5.0,
WINDOWS 3.0

Compatibles

DTK 486DX-33 EISA Full Size Tower 256K Cache	**$1475**
Amptron 486DX-50 ISA Full Size Tower 256K Cache	**$975**
486DX-33 Full Size Tower 256K Cache	**$725**
386DX-40 2MB Ram 1.2MB 1.44MB 80MB Hard Disk Super VGA Monitor Keyboard	**$1190**

TOSHIBA

• **T2200SX 80** 2MB, 1.44 386SX-20, 5.5 lbs.	**$2189**
• **T3300SL 80/120** 2MB, 1.44 386SL-25, 5.9 lbs.	**2569/2889**
• **T4400SX 80/120** 2MB, 1.44 486SX-25, LCD Screen	**2879/CALL**
• **T4400SX 80/120** 2MB, 1.44 486SX-25, Gas Plasma	**3135/3379**
• **T5200/100MB** 2MB, 1.44 386DX-20, 18.7 lbs.	**3075**
• **T6400SX/120MB** 4MB, 1.44 486SX-25, Gas Plasma	**4029**
• **T6400SXC/120 Color** 4MB, Color Active Matrix, 12.9 lbs.	**6339**
• **T6400DX/200MB** 4MB, 486DX-33, Gas Plasma, 11.7 lbs.	**5039**
• **T6400DXC/200MB** 4MB, 486DX-33, Color Active, 12.9 lbs.	**CALL**

* Authorized Dealer *

HEWLETT PACKARD

LASERJET PRINTERS

IIP Plus w/Toner (New)	**$769**
IIIP w/Toner	**Call**
III w/Toner	**Call**
IIID w/Toner	**2235**
IIISI w/Toner (New)	**Call**

INKJET PRINTERS

DeskJet 500	**$399**
DeskJet 500 Color	**689**
DeskWriter	**399**
DeskWriter Color	**689**
PaintJet	**699**
PaintJet XL	**1595**

★ ALL ACCESSORIES AVAILABLE AT DISC. PRICES ★

Memory Upgrades

II, IID, III, IIIP, D, IIP

1 MB/ 2 MB	**$109/169**
3 MB/4 MB	**209/249**

★ 5 Years Mfg. Warranty on Board ★

HP 95LX Palmtop Comp.	**CALL**
HP Connectivity Pack	**89**

Accessories

IIP, IIIP Lower Tray	**$145**
HP II, III Toner	**79**
HP IIP, IIIP Toner	**69**
HP Postscript Cartridge	**469**
Pacific Page Postscript PE	**369**
Pacific Page XL Cartridge	**749**
HP LaserJet Fax	**925**

EVEREX

COMPUTER SYSTEMS DIVISION
Authorized Dealer

TEMPO 386SX-16 4MB
TEMPO 386DX-25 4MB
TEMPO 486SX-20 4MB
TEMPO 486DX-33 4MB
Step 386SX-20, 1MB
Step 486-33 EISA
Cube EISA

CALL FOR BEST PRICE!

AST

RESEARCH INC.
Authorized Dealer

Bravo II 286-12
Prem II 386SX-16
Prem II 386SX-20
Prem II 386DX-33
Prem II 486SX-20
Prem II 486DX-33

Call For Best Prices

SONY

Sony 1304 w/Cable	**$555**
Sony 1302 1024x768 .25	**519**
Sony 1320 800x600	**429**

★ NEW ★

Sony 1604 17" Monitor 1024x768 .25DP	**$995**
Sony CD-ROM	**Call**

IBM

Authorized PS/1 DEALER

PS/1 386SX-20 80HD	**$1099**
PS/1 386SX-20 129HD	**1269**

Includes: 2MB RAM, VGA Card, IDE CTRL, 1.44 Drive

EVEREX

Authorized Dealer

★ NEW ★

Everex Carrier 40MB 5.5 lbs. ONLY, 386SX-20, 2MB, VGA, BATT.	**$1775**
Everex Carrier 80MB 5.5 lbs, 386SX-20, 4MB, VGA, BATT.	**2089**

★★★

Everex Tempo LX 60MB 386SX-20, 3MB, VGA, 6.9 lbs.	**1625**

All Everex Tempo Includes MS DOS 5.0,
Windows 3.0, Mouse, Carrying Case

Printers

OKIDATA

Authorized Sales/Service

320/321	**$319/429**
390/391	**429/585**
Oki 400 4ppm w/Toner	**589**
Oki 800 8ppm w/Toner	**899**
Oki 830 8ppm w/Toner **Postscript, 35 Fonts, 2MB RAM**	**1245**
Oki 840 8ppm **2 MB, Postscript, Mac Comp**	**1545**

EPSON

Authorized Dealer

LX-810 9 Pin	**$169**
LQ-570 24 Pin	**269**
FX-850/FX-1050 9 Pin	**309/399**
LQ-870/LQ-1170 24 Pin	**449/609**
LQ-1070 24 Pin 132 Col.	**395**
LQ-2550 24 Pin, High Speed	**899**
DFX-5000 9 Pin, 533 CPS.	**CALL**

★ LASER ★

Actionlaser II, 6PPM	**$689**
EPL-7000 Laser, 6PPM, 512K	**789**
EPL-8000 Laser, 10PPM, 1MB	**1289**

★ All Accessories Available ★

NEC

Silentwriter Mdl 95	**$1399**

• Mac Compatible •

CITIZEN

Authorized Sales/Service

GSX 140+ New Faster	**$299**
GSX 130	**275**
GSX 145, 132 COL	**409**
200 GX, 9 Pin	**169**
Color Option	**49/69**

Canon

Bubble Jet

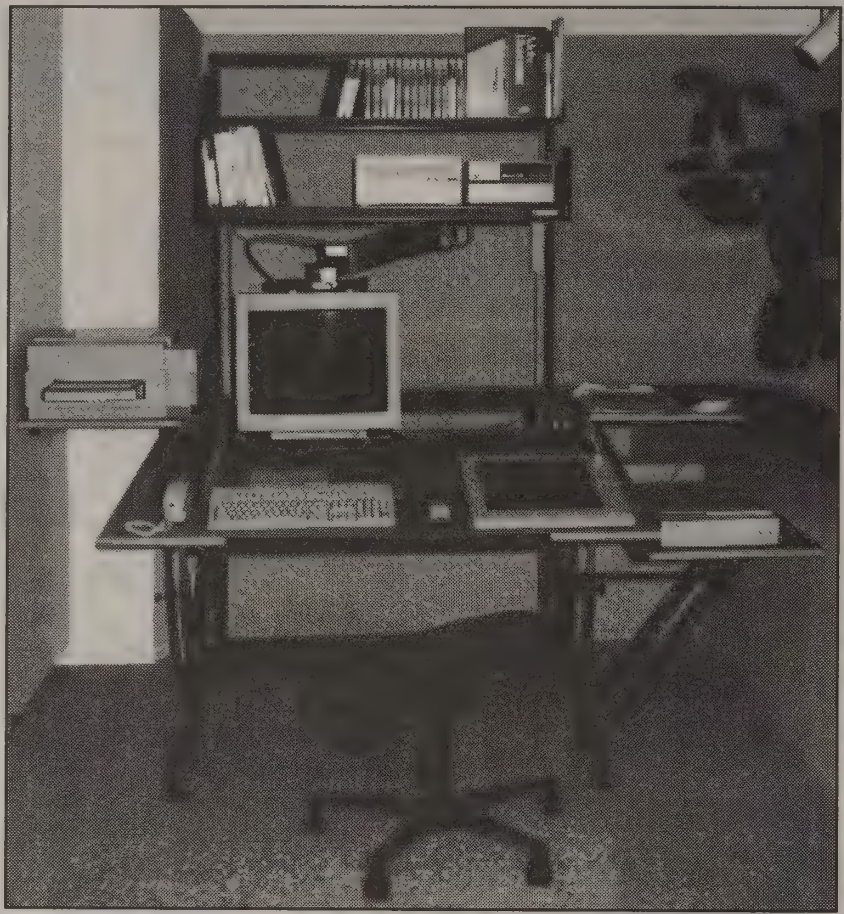
BJ-10EX Printer	**$325**
BJ-300 80 col, 600 cps	**469**
BJ-330 132 col, 600 cps	**619**

brother ***NEW***

HL-10V Laser Printer 10PPM, HP3 Compatible 1MB, 35 Fonts	**$1175**
HJ-1001 Inkjet	**299**

Prices Subject to change w/o notice. Limited Time/Qty.

Save Time,
Save Space,
Save Your Health!



Illustrated: Ergotron Design Station (42" x 78" vertical frame, 36" x 54" adjustable worksurface) with optional peripheral shelf and printer tables. Integrated cable management avoids messy tangles.

- Clear off your desk and save from 50% to 200% in floor space, too.
- Greater comfort means more efficiency – you save time *and* can work longer without stress or fatigue.
- With easy access to the CPU, monitor and peripherals, you save time in maintenance, and upgrades.
- Adjustable monitor & worksurface reduce strain on eyes, neck, shoulders, back, and wrists. You avoid RSI (repetitive strain injury) and save on medical bills and lost time.

We configure these unique, modular Design Stations to meet your specific requirements. We also have free-standing, desk-attachable, and wall or panel mount models for any PC.

ERGOTRON
Ergonomic Computer Workstations

For a free catalog of our Design Station™ products, Call (310) 397-6625 or (800) 888-8458

Special LAN Workstations™ also available.
Ask us for a free, illustrated, custom proposal.

Available in So. Calif. exclusively from:

Gary Davis & Associates
3237 Donald Douglas Loop South
Santa Monica, CA 90405
Fax (310) 390-9917
Tel (310) 397-6625

Made in the U.S.A. Built to last!

You Need Service & Support...Not Just Technical Jargon!

When you're buying a system or need repair and service, the technical jargon can baffle you. At Hacker Electronics, we explain the basics so you understand what you need and what you're getting. We talk to you, not above you. We offer you technical competence, honest salesmanship, and reliable service. With over 18 years of electronic and technical experience, we can help you get what you want with a price you can afford.

NETWORK INSTALLATIONS
HARDWARE AND SOFTWARE SALES
COMPUTER REPAIR
TECHNICAL SUPPORT
HUNDREDS OF PARTS IN-STOCK

$50 Discount With This Ad On Basic Network Contract

HACKER ELECTRONICS
21016 Devonshire
Chatsworth, CA
(818) 882-7980
MasterCard VISA

Southern California's Computer Magazine
MICROTIMES

EDITOR-IN-CHIEF BPA
Dennis Erokan
PUBLISHER
Chuck Stanley
EDITORIAL
EDITOR Mary Eisenhart
ASSISTANT EDITOR Michael Robin
NEWS EDITOR Paul Hoffman
ART DIRECTOR Lisa Lusk
SENIOR DESIGNER Monika Loar
CONTRIBUTING EDITORS Lenny Bailes, John Perry Barlow, John C. Dvorak, Bennett Falk, Ed Kahn, Matthew Leeds, Mike Markowitz, Brock Meeks, David Morgenstern, Tony Reveaux, Birrell Walsh, Jim Warren, Wayne A. Yacco
CONTRIBUTING WRITERS Mikael Blaisdell, Anna Couey, Kathleen Creighton, Adam Gaffin, Peter John Harrison, Fred Lieberman, Woody Liswood, Ken Milburn
CONTRIBUTING PHOTOGRAPHERS Jay Blakesberg, Michael Jay, Ann Summa
ADVERTISING
DIVISION BUSINESS MANAGER Amy Barrett
SALES MANAGER Cynthia Lapporte (Southern California)
SENIOR ACCOUNT DIRECTOR Barry Green (Northern California)
NATIONAL ACCOUNT DIRECTORS Jane Shepherd (Southern California), Greg Sage (Northern California)
ACCOUNT EXECUTIVES Marty Gillow, Tracy Longo, Ken Marson, Chloe Vezo, Debra Weinblatt
CLASSIFIED & SUBSCRIPTION SALES Dana Marie Decker (Northern California)
ADVERTISING SERVICES ASSISTANT Carolyn Guerrero
PRODUCTION
GROUP PRODUCTION DIRECTOR Richard Lesovoy
GROUP PRODUCTION MANAGER Mary Beth DeSantis
PRODUCTION ASSISTANT Alex Marmur
TRAFFIC ASSISTANT Jennifer Dimarob
ART STAFF Jennifer Bagwell, Donna Bogener, Hilary Dunn, Gigi Green, Stephen Noetzel, Diane Wallace
CAMERA OPERATOR John Moorehead
PROOFREADER John Downen
TYPESETTING The Typesetting Shop, Inc.
ADMINISTRATION
ACCOUNTING MANAGER Patricia Buck
SENIOR ACCOUNTANT Linda Hirsch
ACCOUNTING Joaquin Arellano, Kim Carrington, Vickie Liu, Brian Murray, Bonnie Peterson
CREDIT MANAGER Doug Morgan
HUMAN RESOURCES DIRECTOR Erica Stein-Oakley
L. A. OFFICE MANAGER Deborah Daiken
ADMINISTRATIVE ASSISTANTS Karla Frizler, Monica Murdock
L. A. ADMINISTRATIVE ASSISTANT Shannan O'Mara
OFFICE CLERK Leta Jesch
DISTRIBUTION
DISTRIBUTION MANAGER John Erokan
Assistant Manager/LA Art Holland
DISTRIBUTION ASSISTANTS Tami Martin, Erik Satterfield
DISTRIBUTION Dennis Anderson, John Clefstad, Roe Eyth, Frank Grygus, Mike Jett, Don Karr, Juan Lau, Jac Michanovic, Robbie Myers, Racks-Free Distribution, John Dimas Rezendes, Alan Spector, SPS, Wilfredo Villarroel
FOUNDERS Dennis Erokan, Don Hamilton, Pat Hamilton

BAM PUBLICATIONS, INC.
Dennis Erokan, President
Arthur L. Magnus, Chief Financial Officer

This Vol. 9 No. 8 July 20, 1992, Whole No. 98 MicroTimes, California's Computer Magazine, is published by BAM Publications, Inc., 3470 Buskirk Ave., Pleasant Hill, CA 94523. Phone Advertising Office (510) 934-3700. Los Angeles Office, 6767 Forest Lawn Drive, Suite 110, Los Angeles, CA 90068. Phone (213) 851-8600. San Jose Office, 36 Harold Ave., Suite 2, San Jose, CA 95117. Phone (408) 244-4400. Anaheim Office, 801 East Katella Ave., Suite #210, Anaheim, CA 92805. Phone (714) 939-2809. MicroTimes™ is ©1992 by BAM Publications, Inc. Subscription rates: 13 issues, U.S.: 3rd Class $32 (Allow 3 to 4 weeks for delivery), 1st Class $60 Allow 1 to 2 weeks for delivery). MEXICO & CANADA: Surface Mail $50 (Allow 4 weeks for delivery). Air Mail $70 (Allow 1 week for delivery). OVERSEAS: Surface Mail $50 (Allow 6-10 weeks for delivery), Air Mail $165 (Allow 1 week for delivery). To receive sample issues, please send $4 ($6 for overseas) to cover postage costs. Back issues are $6 each. All rights reserved. Reproduction in whole or in part without permission of Publisher is strictly prohibited. The staff and management of MicroTimes do not advocate or encourage the use of any product or service advertised herein for illegal purposes.

ORANGE COUNTY'S LOW PRICE LEADER!

FACTORY DIRECT PRICES

AT 286
12 MHz/BARBONES

- Mini Tower Case
- 12 MHz Motherboard w/1 MB RAM Exp. To 4 MB
- 1.2 Or 1.4 MB Floppy Drive
- Hard & Floppy Controller IDE
- 101 Key Keyboard
- Clock/Calendar
- 2 Serial Ports/1 Printer Port/Game

$285

386SX
16 MHz/BAREBONES

- Mini Tower Case
- 16 MHz 386SX MB w/1 MB RAM Exp. To 4 MB
- 1.2 Or 1.4 MB Floppy Drive
- Hard & Floppy Controller IDE
- 101 Key Keyboard
- Clock/Calendar
- 2 Serial Ports/1 Printer Port/Game

$345

386SX
25 MHz/BAREBONES

- Mini Tower Case
- 25 MHz 386 MB w/1 MB RAM Exp. To 16 MB
- 1.2 Or 1.4 MB Floppy Drive
- Hard & Floppy Controller IDE
- 101 Key Keyboard
- Clock/Calendar
- 200 Watt Power Supply
- 2 Serial Ports/1 Printer Port/Game

$380

386DX
40 MHz W/64K CACHE BAREBONES

- Mini Tower Case
- 40 MHz 386 MB w/64K Cache 1 MB RAM
- 1.2 Or 1.4 MB Floppy Drive
- Hard & Floppy Controller IDE
- 101 Key Keyboard
- Clock/Calendar
- 200 Watt Power Supply
- 2 Serial Ports/1 Printer Port/Game

$515

AT 286
12 MHz

- Mini Tower Case
- 12 MHz Motherboard w/1 MB RAM Exp. To 4 MB
- 1.2 MB & 1.4 MB Floppy Drives
- 80287 Math Co-Processor Socket
- 101 Key Enhanced Keyboard
- Real Time Clock/Calendar
- 2 Serial Ports/1 Printer Port/Game
- Color VGA Monitor
- 16 Bit VGA Card

$580

386SX
16 MHz

- Mini Tower Case
- 16 MHz 386SX MB w/1 MB RAM Exp. To 8 MB
- 1.2 MB & 1.4 MB Floppy Drives
- 80387 Math Co-Processor Socket
- 101 Key Enhanced Keyboard
- Real Time Clock/Calendar
- 2 Serial Ports/1 Printer Port/Game
- Color VGA Monitor
- 16 Bit VGA Card

$665

386SX
25 MHz

- Mini Tower Case
- 25 MHz 386 MB w/1 MB RAM Exp. To 16 MB
- 1.2 MB & 1.4 MB Floppy Drives
- 80387 Math Co-Processor Socket
- 101 Key Enhanced Keyboard
- Real Time Clock/Calendar
- 2 Serial Ports/1 Printer Port/Game
- Color VGA Monitor
- 16 Bit VGA Card

$700

386DX
40 MHz w/64K CACHE

- Mini Tower Case
- 40 MHz 386 MB w/1 MB RAM Exp. To 64 MB
- 1.2 MB & 1.4 MB Floppy Drives
- 80387 Math Co-Processor Socket
- 101 Key Enhanced Keyboard
- Real Time Clock/Calendar
- 2 Serial Ports/1 Printer Port/Game
- Color VGA Monitor
- 16 Bit VGA Card

$820

486
33 MHz w/64K CACHE

- Mini Tower Case
- 33 MHz 486 MB w/1 MB RAM Exp. To 64 MB
- 1.2 MB & 1.4 MB Floppy Drives
- Math Co-Processor
- 101 Key Enhanced Keyboard
- Real Time Clock/Calendar
- 2 Serial Ports/1 Printer Port/Game
- Color VGA Monitor
- 16 Bit VGA Card

$1150

COMPUTER CHECKS • BUSINESS FORMS • LASER PRODUCTS • LABELS • DATA CARTRIDGES

Computer Supplies Unlimited

(714) 841-3393

FAX: (714) 841-8926

Serving You Since 1983

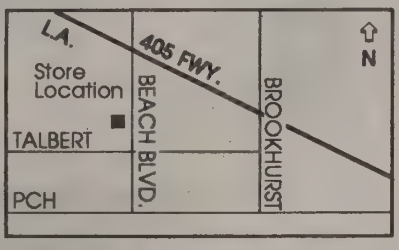
SPECIAL OF THE MONTH

- 386SX-25 MHz Color VGA System
- 40 MB Hard Drive
- 1.2 MB or 1.4 MB Floppy Drive
- 1 MB RAM Exp. 16 MB
- 80387 Math Co-Processor Socket
- Color VGA Monitor
- 16 Bit VGA Card
- 101 Key Keyboard

ONLY $795

w/105 MB Hard Drive.......... **$895**
(End Users ONLY. Sorry No Dealers.)

17931 Beach Blvd., Ste. 110
Huntington Beach, CA 92647
Near NW Corner Beach & Talbert
Look for our sign: COMPUTERS
MON-FRI 9AM-5:30PM



DEALER INQUIRIES WELCOME

MasterCard VISA

Offer Expires 8/15/92
Prices and availability subject
to change without notice.

FINANCING AVAILABLE!

DENNOW
Corporation
Computers, Network, Service
714-474-5488 Corporate Offices

Our Systems are technically sound. Each system prior to being shipped or delivered is tested, evaluated, and documented for future reference. As a client of Dennow Corporation, you will find our systems to be reliable, durable, and very PRICE ATTRACTIVE. Corporations, Schools, Businesses, Students and others continue to find our Computer Solutions just what they wanted. We Service our products long after they are installed. We provide Service Contracts for highly demanding clients and those users wishing to have the assurance that quick service will be received when they call. DENNOW is here for you THEN and NOW and in the FUTURE as you share your computer stories with us. When it comes to Service, Support, and Training, DENNOW is the Company to Call.

UPGRADEs

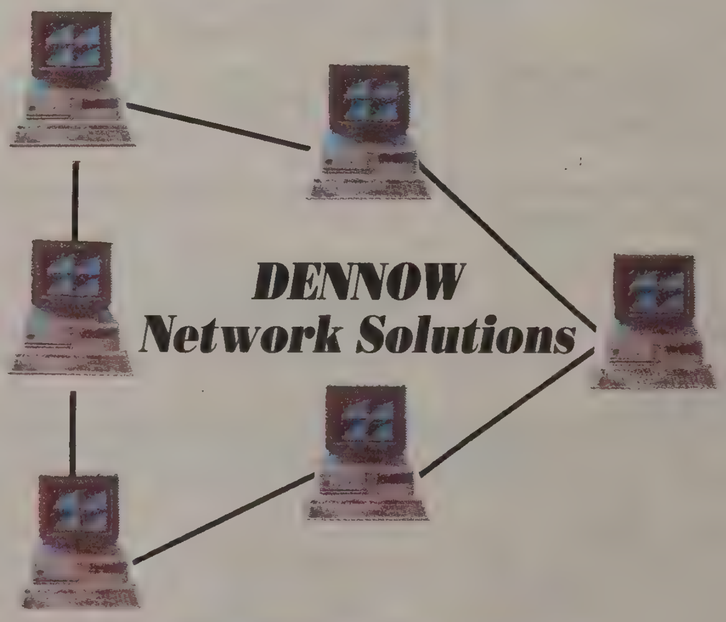
286-20MHz w/CPU, 2MB Ram	$165
386SX-25MHz w/CPU, 2MB Ram	$205
386SX-33MHz w/CPU, 2MB Ram	$215
386-33MHz w/CPU, 4MB Ram	$340
386-40MHz w/CPU, 4MB Ram	$360
486SX-25MHz w/CPU, 4MB Ram	$499
486-33MHz w/CPU/64K Cache, 4MB Ram	$640
486-33MHz w/CPU/256K Cache 4MB Ram	$665
486-50MHz w/CPU/64K Cache, 4MB Ram	$890
486-50MHz w/CPU/256KCache, 4MB Ram	$910

Labor per upgrade $45 each

GET CONNECTED

NETWORKINGS
Expert

Installation, Training, Consultation and Support



NETWORK CARDS
Concentrators
Software and More!

Prices Subject To Change

NOVELL
LANTastic
3COM

Our Highly Qualified Technical Service Staff will assist in:

1. Evaluation of your present Network (if required).
2. Consult and provide information on your present or future Networks.
3. Support your efforts after installation with plain, simple language.
4. Installation and expand your Networks as needed.
5. And be available for questions.

CALL Right NOW!
CALL Right NOW!
CALL Right NOW!
CALL Right NOW!

1921 E. Carnegie Ave., Suites 3C & 3D
Santa Ana, CA 92705

714 474-5488 714 474-5492 Fax
714 474-5491 Tech. Services

DENNOW
Corporation
Computers, Networks, Service and Support

SELECTIONS SAVINGS SATISFACTION

GIL DIAZ
Keep Up with a Professionally Progressive Company, -it's in your favor!

FREE Windows 3.1 + Mouse + DOS 5.0 (Installed)*

1. 486/50MHz
256K Cache ISA Bus

200MB HDD, Full Tower Case, Floppies 1.2MB & 1.44MB, AT I/O IDE, 2 Ser/1 Par/ 1 Game Card, CTX VGA Monitor-Non-Interlaced, SVGA 1MB Color Card, Keyboard 101, (8)MB Ram

$2319 or $89 p/mo.

2. 486/50MHz
64K Cache ISA Bus

200MB HDD, Full Tower Case, Floppies 1.2MB & 1.44MB, AT I/O IDE, 2 Ser/1 Par/ 1 Game Card, CTX VGA Monitor-Non-Interlaced, SVGA 1MB Color Card, Keyboard 101, (8)MB Ram

$2299 or $87 p/mo.

3. 486/33MHz
256K Cache ISA Bus

200MB HDD, Mid Tower Case, Floppies 1.2MB & 1.44MB, AT I/O IDE, 2 Ser/1 Par/ 1 Game Card, SVGA Monitor-Interlaced, SVGA 1MB Color Card, Keyboard 101, (4)MB Ram

$1859 or $70 p/mo.

4. 486/33MHz
64K Cache ISA Bus

200MB HDD, Mid Tower Case, Floppies 1.2MB & 1.44MB, AT I/O IDE, 2 Ser/1 Par/ 1 Game Card, SVGA Monitor-Interlaced, SVGA 1MB Color Card, Keyboard 101, (4)MB Ram

$1829 or $69 p/mo.

5. 486SX/25MHz
ISA Bus

120MB HDD, Mid Tower Case, Floppies 1.2MB & 1.44MB, AT I/O IDE, 2 Ser/1 Par/ 1 Game Card, SVGA Monitor-Interlaced, SVGA 1MB Color Card, Keyboard 101, (4)MB Ram

$1419 or $57 p/mo.

6. 386/40MHz
64K Cache ISA Bus

120MB HDD, Mid Tower Case, Floppies 1.2MB & 1.44MB, AT I/O IDE, 2 Ser/1 Par/ 1 Game Card, SVGA Monitor-Interlaced, SVGA 1MB Color Card, Keyboard 101, (4)MB Ram

$1369 or $52 p/mo.

7. 386/33MHz
64K Cache ISA Bus

120MB HDD, Mid Tower Case, Floppies 1.2MB & 1.44MB, AT I/O IDE, 2 Ser/1 Par/ 1 Game Card, SVGA Monitor-Interlaced, SVGA 1MB Color Card, Keyboard 101, (4)MB Ram

$1349 or $52 p/mo.

8. 386SX/33MHz
Cache ISA Bus

80MB HDD, Baby AT Desktop Case, Floppies 1.2MB & 1.44MB, AT I/O IDE, 2 Ser/1 Par/ 1 Game Card, SVGA Monitor-Interlaced, SVGA 512K Color Card, Keyboard 101, (2)MB Ram

$1165 or $51 p/mo.

9. 386SX/25MHz
ISA Bus

80MB HDD, Baby AT Desktop Case, Floppies 1.2MB & 1.44MB, AT I/O IDE, 2 Ser/1 Par/ 1 Game Card, SVGA Monitor-Interlaced, SVGA 512K Color Card, Keyboard 101, (2)MB Ram

$1115 or $42 p/mo.

10. 286/20MHz
ISA Bus

40MB HDD, Mini Tower Case, Floppies 1.2MB & 1.44MB, AT I/O IDE, 2 Ser/1 Par/ 1 Game Card, Monochrome Monitor, MGP Monitor Card, Keyboard 101, (1)MB Ram

$709

ACCELERATOR SUPER VGA ADAPTER VGA 1024DX

1280x1024, Up to 32,562 Colors For Interlaced and Non-Interlaced Monitors, NEWEST WD 90C31 Chip Set 15 Times Faster Than Stndrd. VTA In Windows Applications

$175

MITSUMI CD ROM Player

Mitsumi CD ROM PLAYER, SCSI Interface 5.25" 600ms, 630MB w/Controller Perfect For Encyclopedias, Dictionaries, And Source Information Centers

$310

*With any Dennow System Purchase

NOTEBOOK CORNER

486/33MHz Notebook Computer

CPU, 486DX/33MHz
Floppy 1.44MB
120MB HDD
Battery Life—2 Hours
AC/DC Adapter
Carrying Bag
CCLFT Backlit LCD
4MB On Board Ram
(up to 16MB)

$2455
Speedster

386/33MHz Notebook Computer

CPU, 386DX/33MHz
Floppy 1.44MB
120MB HDD
Battery Life—2 Hours
AC/DC Adapter
Carrying Bag
CCLFT Backlit LCD
4MB On Board Ram
(up to 16MB)

$1995
Contractor

Additional Products Ready for YOU!

Hard Drives

Maxtor IDE 130MB	$339
Maxtor IDE 200MB	$525
Maxtor IDE 340MB	$820
Conner IDE 510MB	$1085
Micropolis SCSI 676MB	$1205
Micropolis SCSI 1GB	$1790
Maxtor ESDI 676MB	$1395

Monitors

CTX Standard 1024x768, .28	$294
CTX Non-Interlaced 1024x768, .28	$335
MAG 14H, 1024x768,.28, 14" Hi-Res.	$535
MAG 15F, 1024x768,.28, 15" Hi-Res.	$575
MAG 17F, 1024x768,.26, 17" Hi-Res.	$1199

Others

MODEMS
FAX/MODEMS
Keyboards
Network Cards
SVGA Cards
Floppies

CALL NOW and ORDER with Confidence!

714-474-5488 or FAX 714-474-5492

Master Card
Visa
Company P.O.s
Company Check
Money Orders

Excellent Products, Friendly Service, Great Prices

CALL (213) 262-1087

OPEN 7 DAYS

STORE HOURS:
MON-FRI
9AM-6PM
SATURDAY
10AM-3PM
SUNDAY
1PM-5PM

One Year Warranty Parts & Labor

FREE MICROSOFT-COMPATIBLE 880 DPI 3-BUTTON SERIAL MOUSE w/PAD, POCKET (w/SYSTEM PURCHASE)

386-25SX
VGA COLOR

- 386-25SX
- 2 MB RAM, US Made
- Expandable to 8 MB
- Teac 1.2 High Floppy
- 80 Meg Hard Disk
- Dual Hard Floppy Ctrl
- 2 Serial, Parallel, Game
- Vertical or Desktop
- 230 Watt Power Supply
- Super VGA Graphic Card
- 14″ Hi-Res VGA Color w/Swivel
- 101 Key Enhanced Keyboard
- W/Hard Top Cover
- W/Pamphlet

Only $995

386-33
SUPER VGA COLOR

- 128K Cache, US Made, Exp to 256K
- 4 MB RAM, Exp to 32 MB
- Teac 1.2 High Floppy
- Teac 1.44 High Floppy
- 124 Meg Hard Disk
- Dual Hard Floppy Ctrl
- 2 Serial, Parallel, Game
- Vertical or Desktop
- 230 Watt Power Supply
- Super VGA Card w/1024K RAM
- 14″ Super VGA Color Monitor
- 101 Key Enhanced Keyboard
- W/Hard Top Cover
- W/Pamphlet

Only $1369

386-40
SUPER VGA COLOR

- 128K Cache, US Made
- 4 MB RAM, Exp to 32 MB
- Teac 1.2 High Floppy
- Teac 1.44 High Floppy
- 124 Meg Hard Disk
- Dual Hard Floppy Ctrl
- 2 Serial, Parallel, Game
- Vertical or Desktop
- 230 Watt Power Supply
- Super VGA Card w/1024K RAM
- 14″ Super VGA Color Monitor
- 101 Enhanced Keyboard
- W/Hard Top Cover
- W/Pamphlet

Only $1395

486-33
NON-INTERLACED COLOR

- 256K Cache, US Made
- 4 MB RAM, Exp to 32 MB
- Teac 1.2 & 1.44 High Floppy
- 124 Meg Hard Disk
- Dual Hard Floppy Ctrl
- 2 Serial, Parallel, Game
- Vertical or Desktop
- 230 Watt Power Supply
- Super VGA Card w/1024K RAM
- 14″ Non Interlaced Monitor
- 101 Enhanced Keyboard
- W/Hard Top Cover
- W/Pamphlet

Only $1695

486-33
LOCAL BUS/ N.I.

- 256K Cache
- 4 MB RAM, Exp to 32 MB
- Teac 1.2 High Floppy
- Teac 1.44 High Floppy
- 124 Meg Hard Disk
- Dual Hard Floppy Ctrl
- 2 Serial, Parallel, Game
- Vertical or Desktop
- 230 Watt Power Supply
- Super Hi Color VGA Graphic
- 14″ NI SVGA Color Monitor
- 101 Enhanced Keyboard
- W/Hard Top Cover
- W/Pamphlet

Only $1795

486-50
NON INTERLACED

- 256K Cache
- 4 MB RAM, Exp to 32 MB
- Teac 1.2 High Floppy
- Teac 1.44 High Floppy
- 170 Meg Hard Disk
- Dual Hard Floppy Ctrl
- 2 Serial, Parallel, Game
- Vertical or Desktop
- 230 Watt Power Supply
- Super Hi Color VGA Graphic
- 14″ NI SVGA Color Monitor
- 101 Enhanced Keyboard
- W/Hard Top Cover
- W/Pamphlet

Only $2069

NEW SERVICE DEPARTMENT
MONITOR REPAIR CENTER
LOWEST RATES

9600B FAX MODEM

$69 With System Purchase

To see our prices and order online, call CPI BBS with your modem at **(310) 366-7472**. Open 24 hours daily. FREE 14 days to each new caller!

SPECIAL THANKS FOR USING OUR COMPUTER SYSTEMS

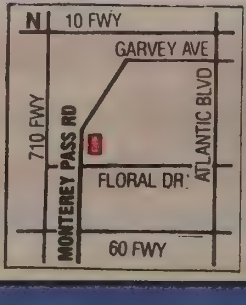
City of Monterey Park
County of Los Angeles
Department of Water & Power
Monrovia Fire Department
NBC
U.S.C.
World Electronic Network
Xerox
U.S. Navy

PACER U.S.A. SYSTEMS — READY TO SERVE YOU ANYTIME!

COMPUTER PACER

1460 MONTEREY PASS RD. #B
MONTEREY PARK, CA 91754
(213)262-1087

VISA



WE ACCEPT GOVERNMENT & UNIVERSITY PURCHASE ORDERS!

TERMS: C.O.D. cash, Company & University PO's on approval. All returns must have an RMA number. Prices do not include shipping. Prices subject to change without notice. Listed names of products are registered trademarks of their respective companies.

Pacer USA is a trademark of Power Tech Harrington, Inc.

LETTERS

BAH! HUMBUG!

Considering all the bitching about Windows 3.0, 3.1, and OS/2, I will gladly stay with DR DOS 5.0 or 6.0, or any DOS, and be happier, have less crashes, less problems, and be out fewer dollars.

Also, I bet we will have more DOS applications and will be using more DOS applications in the year 2000 than any other operating system.

Ray Stahl
San Francisco

AMIGA VISION

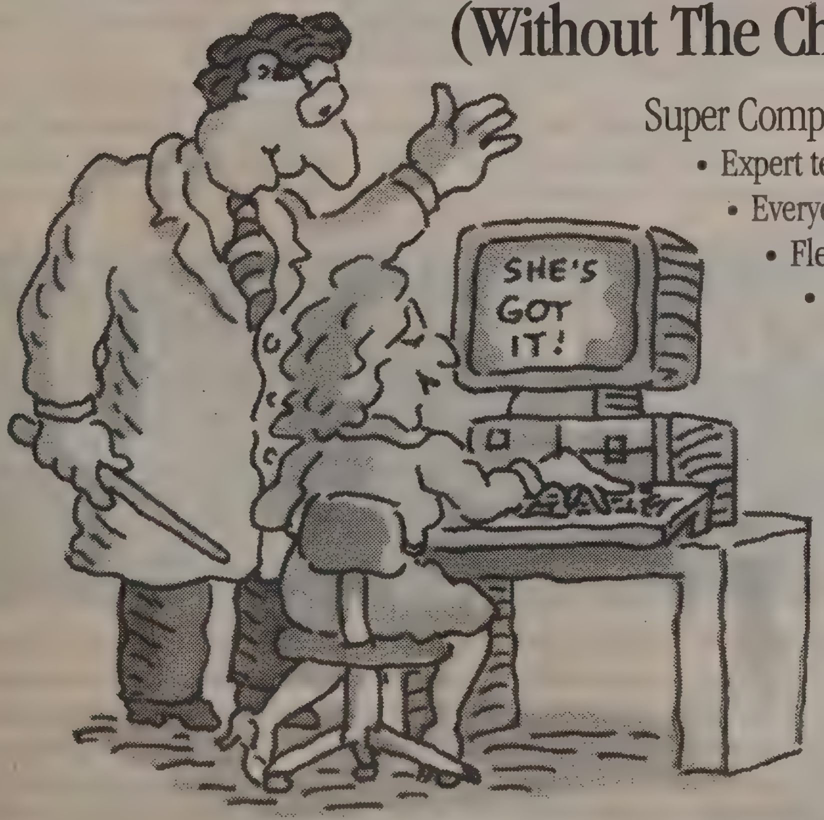
It appears to me that you are dropping your column regarding the Amiga, and in so doing, some of your responsibility as "California's Computer Magazine."

I am a member of the Los Angeles Amiga Users Group. There are many Amiga owners and users out here, and we are into all the various aspects the Amiga manages to provide that are not so easily provided on either the PC or the Mac—cost as well as applications.

Maybe the number of Amiga owners/users does not compare against the number of PC and Mac owners/users, but I think John Walker from Autodesk (Issue #95) had it right when he said, "But that took a lot of imagination. You had to be plugged into what had been done on the high end, to see the potential, and you had to believe in something that I think for a lot of people is very difficult to believe in." The point being that although it's not the most popular of platforms, the Amiga is out there on the future lines of where home computers can go.

3-D graphics and modeling are already very common among Amiga owners, as is animation, digitizing from video cameras and cassettes, video editing and digital music creation; it is a very simple thing for an Amiga user to put these creations onto video cassettes as

continued on page 35



Effective, Low-Cost Training.
(Without The Chairs And Whips.)

Super Computer Training available in Culver City and San Diego.
- Expert teachers who communicate in plain English, not Tech-Speak.
- Everyday low prices that are as easy to take as our classes.
- Flexible on-site training. If you can't escape, we'll come to you.
- Convenient day, evening and weekend class schedules.

Each regular class is only $119 but you can save even more with our special Valuepak pricing:

Buy 3 classes ....**$109 each**
Buy 10 classes........................**$99 each**
Buy 50 classes........................**$89 each**

Plus, buy any ValuePak and get an extra class FREE!

COMPUSA
THE NATION'S LARGEST COMPUTER SUPERSTORE℠

Culver City (310) 572-7121 **800-TRAIN-80** for the center nearest you! **San Diego** (619) 573-1010

NEWS & VIEWS

INDUSTRY INSIGHT

Intel Announces New Standard, PC Prices Plunge, IBM And Microsoft Reach OS Agreement

BY PAUL HOFFMAN

Paul Hoffman is an industry analyst who has been covering microcomputer technology for ten years. He can be reached on Internet (phoffman @well) or CompuServe (71545,346)". He also writes popular microcomputer books.

INTEL'S PCI STANDARD

Intel has announced its long-awaited Peripheral Component Interconnect (PCI) specification, and has immediately gained the wide support of nearly all of the PC manufacturers. PCI is a standard way to design motherboards so that speed-dependent peripherals such as graphics, network, and hard disk controllers can talk to the CPU at high speeds. In the last year, a few PC manufacturers have introduced non-standard graphics controllers on the motherboard and have achieved graphics speeds 10 times faster than standard SVGA.

The importance of PCI for high-end PCs should not be underestimated. Now that Intel has serious competition in the CPU market, the price of the high-end CPUs and even its future 586 (or whatever they will call it) will come down faster than in previous years. With the cost of the CPU dropping quickly, you will be more able to buy a machine with a high-end CPU sooner. However, the two most important speed bottlenecks (after the CPU), graphics and hard disk controllers, have not kept up with the CPU in price drops for fast systems. PCI will allow PC manufacturers to put very fast controller chips directly on the motherboard and thus drop the price of the fastest systems.

The peripherals that will benefit most from PCI are graphics controllers, LAN adapters, and SCSI hard disk controllers. With PCI, it is fairly easy to design a system with all three built onto the motherboard, running at full speed. The cost will be low because the additional peripherals will be able to talk to RAM memory without going through either the current bus (such as ISA, EISA, or MicroChannel). PCI will be a particular boost to multimedia PCs which suffer from slow speed due to the PC bus. With PCI, a manufacturer can design a multimedia PC with a SCSI controller (for the CD-ROM player), a video controller, and an audio controller directly tied to the CPU and to memory, eliminating the three worst bottlenecks in current multimedia designs.

With just a few chips, which are expected in the coming months, a manufacturer can also turn a bare bones PC with a 486 CPU into a fully configured workstation that runs at blinding speed. For example, it is expected that instead of having to buy a $400 high-speed graphics board for such tasks as CAD, you will pay about $100 more for a PCI-compatible system with the graphics built in. High-end systems that are used as network servers can also be made to run much faster for only a little money with the addition of a network controller and a SCSI controller on the PCI bus.

Look for the first PCI-compliant systems to be announced at CompuExpo and COMDEX this fall. Prices may initially be high, but they will drop quickly if the systems are popular.

MASSIVE PRICE DROPS IN PC MARKET

Almost every major name-brand manufacturer of PCs has dropped its prices 20–40% in the past two months. This sudden, massive decrease will have many ramifications for PC buyers.

Many people are kicking themselves if they bought a PC before the price drop, but the downward movement was completely unpredictable. Most industry analysts assumed that the first general market drop would happen this fall, when Intel dropped the price of its CPUs and the new models of PCs were announced at CompuExpo and COMDEX. The across-the-board drop in recent months is probably due to increased competition between big name mail-order houses, local stores selling major brands such as IBM and Compaq, and the recent proliferation of "super stores."

Not everyone is rejoicing about the price cuts, however. Retail stores will definitely feel the pinch as their profit per sale plummets in the coming months. Unless they can make up for the lost revenue in greater sales, their total profits will sink drastically and some will be forced to shut down. Even those who remain healthy will have to rapidly increase the number of systems sold in the short run. This will put pressure on their customer service departments, who will have to deal with more dead PCs than before (few people believe that the quality of the average PC has gone up in the past few years). Hiring qualified technicians is already difficult, and it may become even worse in the coming months.

> *Despite the number of sales of Windows 3.0, Windows 3.1, and OS/2 2.0, most people still prefer plain old MS-DOS.*

For buyers, of course, the news is all good. Because many major brands dropped their prices, most stores will have to drop prices across the board or specialize exclusively in the brands with the

continued on page 25

RED HOT SPECIAL

Top Savings, Top Quality, Top Computer !

WHOLE SALE TO THE PUBLIC

FREE SOFTWARE

THIS MONTH SPECIAL
486DX 33/256K

$1234

- Intel 486DX-33 MHz
- 256K Cache
- 4MB RAM Installed
- 80MB IDE Hard Drive
- 1.2MB & 1.44MB Floppy Drive
- Dual F/H IDE Controller
- 101 Enhanced Keyboard
- Desktop or Mini Tower Case
- VGA Graphic Card
- 14" Color Monitor

FREE
High resolution Mouse with This Month Special

UNBELIEVABLE ROCK BOTTOM PRICES!!

System	Price
286-12 MHz	$235.
386SX-25 MHz	$310.
386SX-25 MHz	$359.
386DX-33 MHz (w/64K Cache)	$375.
386DX-33 MHz (w/64K Cache)	$385.
486DX-33 MHz (w/256K Cache)	$675.
486DX2-50 MHz (w/256K Cache)	$859.
486DX2-50 MHz (w/256K Cache)	$939.

SYSTEM INCLUDES:
- Mini Tower or Desktop Case
- 200 W Power Supply
- 1MB RAM Installed
- 1.2MB or 1.44MB Floppy Disk Drive
- Dual FDD & HDD Controller Card (1:1)
- 2 Serial/1 Parallel/1 Game Port
- Realtime Clocks & Calendar
- 101 Enhanced Keyboard
- 1 Year Warranty

Monitor & Graphic Card Bundles

MONO AMBER	
•12" Mono w/MGP Card	$ 90.
•14" Mono w/MGP Card	$105.
COLOR VGA	
•14" VGA Color w/VGA Card	$ 245.
•14" SVGA Color w/ SVGA	$ 335.

Upgrades

• 1 MB RAM to 2MB	add $40
• 1 MB RAM to 4MB	add $105
• 1 MB SIMM	$35
• 4 MB SIMM	$CALL
• 1.2 MB FDD	add $55
• 1.44 MB FDD	add $55

Quality Hard Disk Drives

• 20MB IDE	$119.	• 120MB IDE	$319.
• 40MB IDE	$195.	• 170MB IDE	CALL
• 85MB IDE	$249.	• 245MB IDE	CALL
• 105MB IDE	$275.		

Modem & Parts

• High Resolution Mouse	$15	• Pen Mouse	$CALL
• Mouse w/Windows 3.1	$65	• Trackball Mouse	$45
• 2400 Internal Modem	$39.		
• 2400 Toshiba Laptop Modem	$105		

Printers

• Panasonic 1124i	$280	• Daisy Wheel Cardco LQ/3	$69
• Epson LQ570	$275	• HP LaserJet III	$Call
• Epson EPL 7000	$779	• HP IIP Plus	$Call
• OKI Laser 400	$625		
• Brother HL-10V 10ppm CALL			

Notebook

Limited Quantity Hurry!!

NCR 3120 Notebook 386SX-20MHz w/VGA

- 640x480 VGA LCD
- 1MB RAM (expandable to 2 or 5MB)
- 1.44MB Floppy Drive
- 30MB Hard Drive (60MB Optional)
- Expansion slot
- Lightweight (5.7lb w/battery)
- MS-DOS
- Free Carrying Case

$1195.

- And More Notebooks

Network

- Network Specialists
- Netware V2.2
- Netware V3.11
- Novell Installation

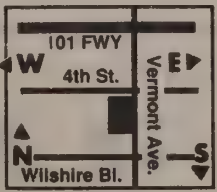
CALL

(213) 384-6601

Fax:213/384-6713

SINCE 1987

TOP Computer



BUSINESS HOURS
- Mon-Fri 9:00-7:00 pm
- Sat 10:00-6:00pm

Terms: Prices subject to change without notice.

TOP COMPUTER SYSTEMS • 401S. VERMONT AVE., SUITE 5,6 LOS ANGELES, CA 90020

Multimedia P.C. Now?

Yes, upgrade your existing PC to a complete Multi-media tool with Certified Hardware and Software for only:

$595

Free Installation and Limited Training.

This **Upgrade Kit** includes:

- Sound Blaster Pro complete.
- Adapter for CD-ROM Drive.
- Midi Interface.
- Panasonic CD-ROM Drive.
- Windows 3.1 for Multimedia.
- Microsoft Bookself for Windows that includes: Dictionary, Thesaurus, Atlas,Encyclopedia. With Animation and Sound.
- 200 Songs on a Disc.
- Game Disc: Sherlock Holmes.

Upgrading Existing PC's: True Upgrade, No Patch!

SYSTEM UPGRADES:

**$30 Labor for Mother Board Upgrade. No Charge to Existing Binary Customers.*

• 8088 to 286-16 MHz w/1 MB RAM	$125
w/2 MB RAM	$170
• 8088 or 286 to 386-25 DX w/4 MB RAM	$360
386-40 DX w/4 MB RAM	$420
• 80486-33 MHz w/64 KB Cache w/4 MB RAM	$695
80486-50 MHz w/64 KB Cachew/4 MB RAM	$1080

HARD DISK UPGRADES:

• 120 MB Hard Disk w/CTRL, 15 MS	$325
• 175 MB Hard Disk w/CTRL, 15 MS	$370
• 200 MB Hard Disk and larger	$ Call

SCSI CONTROLLERS:

• ADAPTEC SCSI Kits, Extensive Manuals & Software.

Model 1522	$160
Model 1542B	$280
EISA 1740	$480

VIDEO CARDS:

• ISA Super VGA (1 MB, 70 Hz, VESA, STD, 1024 x 768)	$82
• ISA Diamond 24 (16 Million Colors, 24 Bit, 1MB)	$180
• ISA Diamond Stealth (1 MB, Fast VRAM, 72 Hz, 1248 x 1024)	$260
• EISA 32 Bit Video Board (Mylex)	$365

MONITORS:

• TATUNG, SVGA, .28 mm, Interlaced	$290
• TATUNG, SVGA, .28 mm, Low Radiation, Non-Int.	$360
• NEC, 4 FG (15", Flat, Full Screen)	$795
• NEC, 5 FG (17", Flat, Full Screen)	$1350
• NEC, 6 FG (21", Flat, .28 mm, 1280 x 1024)	$ Call

Optical Drives w/Software for DOS/Network

• Panasonic 7010 Read/Writable, Comp. with WORM, 1 GB, INT./EXT.	$2595/$2795
• Panasonic LF 3000, 3-1/2", 128 MB, SCSI II, Read/Writable, INT./EXT.	$1595/$1875

Binary Group

COMPARE APPLES TO APPLES?

When customers are shopping only for name brand PC's, life is easy for us, they simply don't call us. When people are looking for name brand components, life is easy for us too, because that's what we put into our systems. What is not so easy for us is when customers are shopping and comparing prices with only half of the specifications: the half that most vendors advertize, the half that serves as buzz words for inquiry. The other half though, is the specifications that really determine how stable the screen is at 1024 x 768, how fast the hard disk will respond in real applications, and, of course, how much you, as the one who is buying it, have to pay. Therefore, do not compare a whole apple to half of an apple. Call Binary for the other half of the story. With 6 years of experience and reputation, we sell only the whole Apple!

Novell Gold Authorized DEALER

Call and Ask for References

NEW FEATURES: *All 486 systems are equipped with Low Radiation, 70 Hz Non-Interlaced Monitors.*

LOCAL BUS CONFIGURATION AVAILABLE, PLEASE CALL FOR DISCUSSION.

BINARY 486 DX-50 MHz EISA

- 80486-50 MHz, Intel CPU
- 8 KB Internal/256 KB External Cache
- 4 MB RAM (Upgradable to 64 MB)
- 2 Serial / 1 Parallel / 1 Game
- SCSI EISA HD CTRL (32 Bits)
- SCSI 200 MB HD (15 MS)
- 5-1/4' Floppy Drive (1.2 MB)
- 3-1/2' Floppy Drive (1.44 MB)
- Super VGA Card (1MB, VESA, 70Hz)
- Low Radiation, Super VGA, Non-Interlaced Monitor (TATUNG)
- Full Size Tower Case
- AT Enhanced Keyboard
- MS-DOS 5.0
- Hi-Res. Mouse

$3200

BINARY 486 DX-50 MHz ISA

- 80486-50 MHz, Intel CPU
- 8 KB Internal/256 KB External Cache
- 4 MB RAM (Upgradable to 32 MB)
- 2 Serial / 1 Parallel / 1 Game
- IDE 200MB (15MS) (2 Year Factory Warranty)
- 5-1/4' Floppy Drive (1.2 MB)
- 3-1/2' Floppy Drive (1.44 MB)
- Super VGA Card (1MB, VESA, 70Hz)
- Low Radiation, Super VGA, Non-Interlaced Monitor (TATUNG)
- Full / Mid Size Tower Case (250 W)
- AT Enhanced Keyboard
- MS-DOS 5.0
- Hi-Res. Mouse

$2390

BINARY 486 DX-33 MHz ISA

- 80486-33 MHz, Intel CPU
- 8 KB Internal/64 KB External Cache
- 4 MB RAM (Upgradable to 32 MB)
- 2 Serial / 1 Parallel / 1 Game
- IDE 175 MB HD (15 MS)
- 5-1/4' Floppy Drive (1.2 MB)
- 3-1/2' Floppy Drive (1.44 MB)
- Super VGA Card (1MB, VESA, 70Hz)
- Low Radiation, Super VGA, Non-Interlaced Monitor (TATUNG)
- Full / Mid Size Tower Case (250 W)
- AT Enhanced Keyboard
- MS-DOS 5.0
- Hi-Res. Mouse

$1890

BINARY 386 DX-33 MHz ISA

- 80386-33 MHz
- 4 MB with 64 KB Cache (Up to 32 MB RAM)
- 2 Serial / 1 Parallel / 1 Game
- IDE 100 MB HD (NEC)
- 5-1/4' Floppy Drive (1.2 MB TEAC)
- 3-1/2' Floppy Drive (1.44 MB TEAC)
- Super VGA Card (1MB, VESA, 70Hz)
- Super VGA 1024 x 768 Monitor (TATUNG)
- AT Enhanced Keyboard
- Hi-Res. Mouse
- Full Size Tower Case

$1250

PERIPHERALS

Panasonic KX-P1123 w/Cable	$198	Summasketch 12 x 12 Digitizer	$295	Logitech Mouseman	$70
Epson LQ-570 w/Cable	$280	Sound Blaster Pro	$225	Logitech Bus Mouse	$80
HP III P w/Cable	$1,000	CD-ROM Software	$ Call	True Mouse	$25
HP III w/Cable	$1,450	2400 Baud Modem (v. 42, NMP 7)	$50	RAM Upgrade (Per MB)	$40
HP III D w/Cable	$2,350	9600 / 2400 Baud Fax / Modem	$90	Monochrome Monitor	$78
HP Deskjet 500 w/Cable	$400	9600 Baud Modem (v. 42)	$255	Cach Memory (256K)	$60
HP Deskjet 500 c w/Cable	$700	Colorado Tape Back-up (120MB) w/Tape	$220		
		Tape Back-up External Kit	$95		

Inc.

15061 Springdale St., Unit 107-108 • Huntington Beach, CA 92649
Tel: **(714) 894-6827** • Fax: (714) 894-0196
Hours: Mon-Fri 9:00 - 5:30 • Saturday 10:00 - 4:00

A C E INC.

1597 Westwood Blvd. • Los Angeles, CA 90024
(800) 441-3475 • FAX (310) 477-6420
(310) 477-5442

Same Day Shipping
Price Subject to change
MONDAY-FRIDAY 8:30-5:00

WHOLESALERS & EXPORTERS
CALL FOR BEST PRICES
BRAND & BULK

Special white box with Tyvek sleeves and color coded labels.

WE ARE THE BEST, COMPARE US WITH THE REST

COMPETITIVE PRICES FOR PREMIUM FORMATTED DISKS

FOR QTY CALL

PREMIUM LIFETIME WARRANTY MAC/IBM DISKS

3½" DS/DD 720K **39¢** packs of 25/50

5¼" DS/DD **21¢** packs of 25/50

3½" DS/HD 1.44 MB **65¢** packs of 25/50

5¼" DS/HD **35¢** packs of 25/50

5¼" DS/HD COLOR Tyvek sleeves, labels & tabs
Colors Available: light blue, white, lavender, gray, red, brown, green, yellow, blue, orange, med, dark blue, maroon, magenta, rainbow pack
49¢

5¼" DS/DD COLOR Tyvek sleeves, labels & tabs.
Colors Availble: light blue, white, lavander, gray, red, brown, green, yellow, blue, orange, med, dark blue, maron magenta, rainbow pack.
32¢

SONY
Colors: white, red, blue, black, green, yellow, orange, gray, light gray.
49¢ SONY BULK
3½" DS/DD .... $7.50 BOX
3½" HD .... $13.95 BOX

Brand Name Diskettes For Less EXPORTERS CALL!!

BASF
5¼" DS/DD . . .$4.70 BOX CALL
5¼" HD . . . . . .7.50 BOX CALL
3½" DS/DD . . .7.50 BOX CALL
3½" HD . . . . .13.95 BOX CALL

maxell.
5¼" Box of 10 disks . . . .$5.50 BOX CALL
5¼" HD . . . . . .9.50 BOX CALL
3½" DS/DD . . .8.50 BOX CALL
3½" HD . . . . .13.95 BOX CALL

Verbatim A Kodak Company
5¼" DS/DD . . . . .$5.10 BOX CALL
5¼" DS/DD Teflon Preformatted 5.20 BOX CALL
5¼" HD Preformatted . . .8.80 BOX CALL
3½" DS/DD. . . . . .7.50 BOX CALL
3½" HD . . . . . . .11.95 BOX CALL

SONY
3.5" BULK
DS/DD .... 49¢
DS/HD $1.09
3.5"
DS/DD $7.50
DS/HD 12.95

KAO
5¼" DS/DD. . .$4.20 BOX CALL
5¼" HD . . . . . .6.90 BOX CALL
3½" DS/DD . . .7.90 BOX CALL
3½" HD . . . . .11.90 BOX CALL

Dysan
5¼" DS/DD. . .$5.50 BOX CALL
5¼" HD . . . . . 9.95 BOX CALL
3½" DS/DD . . 7.95 BOX CALL
3½" DS/HD . .12.95 BOX CALL

Nashua
5¼" DS/DD . . .$3.70 BOX CALL
5¼" HD . . . . . .6.50 BOX CALL
3½" DS/DD. . . .7.10 BOX CALL
3½" HD . . . . .12.95 BOX CALL

3M
5.25"
DS/DD $6.19
DS/HD 9.95
3.5"
DS/DD $9.95
DS/HD 14.95

Bulk Diskettes 100 Pc. Min

All Diskettes are 100% Tested error free and have a lifetime guarantee

5.25" DS Naked 21¢
Deluxe* ....29¢
*W/Tyvek & Labels

5.25" DS/Color* 35¢
*w/Tyvek & Labels
Colors: Lt. Blue, Royal Blue, Brown, Green, Grey, Red, Lavender, Magenta, Burgundy, Orange, Yellow, White & Rainbow Pak (10 colors)

3.5" DS Bulk 39¢
Sony 49¢
*Nine Colors Available

5.25" HD Naked Bulk 35¢
w/Paper & Labels

5.25" HD Color* 49¢
w/Tyvek & Labels
Colors: Royal Blue, Green, Grey, Red, Yellow

3.5" HD Bulk 65¢
68¢/100+
w/Labels

Disk Holders And Accessories

Computer Paper 9½" x 11" 2,500 sheets $22.95
Computer Paper 14⅞" x 11" 3,000 sheets $32.95
Computer Cables (Parallel, Serial, etc.) $7.95
Power Surge Control (UL) $8.95
AC Power Pad (Master Pad) (UL) $21.95
5¼" Diskholder holds over 140 diskettes $10.95
5¼" Diskholder holds over 100 diskettes $8.95
5¼" Diskholder holds over 50 diskettes $6.95
5¼" Smokey Deluxe Library Case holds 10 diskettes ...$1.50
3½" Diskholder holds over 50 diskettes $6.95
3½" Diskholder holds over 80 diskettes $10.95
3½" Deluxe Library Case holds over 20 diskettes Perfect Data.....$14.95
3½" Smokey Deluxe Library Case holds 10 diskettes $1.50
Head Cleaning Kit for disk drives (3½" or 5¼") $3.95
Data Switch Box ....ABC-$25, ABCD-.....$35
Keyboard Drawer ....Wooden-$39.95, Grey Metal-$29.95
Keyboard Drawer ....Under Table $24.95

Minimum Purchase 100 Diskettes

Shipping: 1st 100 diskettes $4.00 each additional 100, $1.00 — UPS, COD Add $4.00

3M
DC-2120 .... $19.95
DC-2000 .... 14.95
DC-600A 19.95
DC-6150 .... 21.95
DC-300 XLP $19.95
Maxell CS 600HD . 19.95
Verbatim ST
600 HD 9.95

Toner
HPIIP/IIIP $69.95
HPII/III. 79.95
HP Deskjet 16.45

EXTRAS
Paper Sleeves ..... 2¢
Tyvek Sleeves ..... 4¢
Labels & Tabs ..... 2¢

CALL FOR FREE '93 CATALOG

continued from page 20

best quality/price ratio. The prices of many peripherals such as SVGA monitors and high-speed modems have also been dropping consistently, so complete systems should see the same drop as bare bones ones. This bodes well for anyone who wants to buy a computer in the next few months. It is now less clear how much the anticipated CPU price drops will affect system prices, but expect another round of price cutting before the end of the year due to lower CPU costs.

The most significant problem with this picture is the recession. PCs are bought mostly by small companies, and small companies are still hurting badly. There is not much that can be done for the economy, even in an election year, that will spur computer sales in the coming months. If you don't have much money to spend on a PC, it doesn't really matter if the price has dropped. In other countries whose economies are better than the that of the US, these price drops are more likely to cause greater sales. Here, however, it is not clear whether these price cuts will cause much of an increase in system sales. If sales don't go up, expect to see particularly hard times for all computer dealers.

MICROSOFT AND IBM AGREEMENT ON OPERATING SYSTEMS

In a move sure to put many purchasers' fears to rest, Microsoft and IBM have agreed on how they will use and sell MS-DOS, Windows 3.1, and OS/2 for at least the next year and a half. The agreement makes it easier for IBM to sustain OS/2 in the long run, much to the relief of many corporate PC buyers. In addition, the agreement clarifies Microsoft's role as the prime mover of Windows (beginning with version 4) and Windows NT. Although neither side was willing to admit it, they both scored significant victories with their primary markets.

The main points of the agreement are:

•IBM has full rights to all versions of MS-DOS until September 1993. At that point, it will either have to come up with its own DOS, rely on Microsoft to sell MS-DOS to its clients, or sell a DOS equivalent such as DR DOS.

•IBM can continue to use Windows 3.1 source code in its products and can sell Windows 3.1 as an OEM. It is unlikely that it will have those rights for Windows 4.

•IBM can sell Windows NT on IBM hardware, but it loses the right to modify or incorporate Windows NT source code. It can view the Windows NT source code, which can possibly lead to an NT-compatible operating system (although this is unlikely).

•Microsoft and IBM will exchange all current software and many hardware patents, as well as those awarded in the next five years. Microsoft had to pay a reported $10–20 million for these rights because IBM holds so many more patents than Microsoft.

•Both companies will work together (yeah, right...) to give Windows better access to mainframes.

The agreement has many long-term effects that will change the way people view PC operating systems. Because MS-DOS is still by far the most popular operating system, Microsoft's control of it is crucial for the long term. Despite the number of sales of Windows 3.0, Windows 3.1, and OS/2 2.0, most people still prefer plain old MS-DOS.

Microsoft will soon be in the position of being the main driving force behind improvements to MS-DOS. Although it has spent much more money promoting Windows, MS-DOS still makes up a sizable proportion of Microsoft's annual profits.

After September 1993, IBM will still be able to provide its customers with MS-DOS or an equivalent. It can either license future versions of the program from Microsoft, continue to include the last version available under the old terms (much as many companies did with version 3.3 until version 5.0 came out), or invest in creating an MS-DOS compatible operating system. With its recent links to Novell, the new owner of DR DOS, IBM may actually save money by distributing DR DOS instead MS-DOS. That may sound farfetched now, but remember how few people thought that end users would be willing to buy a 386 manufactured by AMD and how unimportant the manufacturer turned out to be in customers' minds.

IBM is also guessing that people will not demand Windows 4 compatibility in future versions of OS/2, and that is probably a safe bet. Given the large number of people who have not upgraded from Windows 3.0 to 3.1, it is safe to assume that Windows 3.1 compatibility will be sufficient for many years (note that OS/2 version 2.0 still only comes with Windows 3.0). This will probably lock in Windows 3.1 as the target for most Windows software in the next three or four years.

Microsoft gained a great deal from the agreement as well. Now, no one will wonder how much effect IBM will have on Windows NT: it is clear they will have next to none. The success or failure of Windows NT is now totally in Microsoft's hands.

Microsoft recently released the first almost-full versions of

High Tech News from Japan

(Excerpted from the weekly news digest of Japan Marketing Group, 400 Groveland Ave., Suite 312, Minneapolis, MN 55403, 612/871-7889. JMG covers products and events in the Japanese computer industry.)

•**Fujitsu** and **Apple Computer** are negotiating an agreement by which Apple licenses its QuickTime software for use in Fujitsu's popular "FM Towns Series." Fujitsu had apparently been interested in Microsoft's MPC technology, but has decided that QuickTime, recently licensed to Silicon Graphics, will dominate the multimedia field.

•**Olivetti Japan** has begun shipping a PC based on a 50MHz version of the MIPS R4000 RISC processor. The system will run either Windows NT or UNIX System V Release 4.

•**Lotus Japan** is shipping a new version of its "Harmony" integrated software package, co-developed with Just Systems, in both floppy-disk and IC card versions. The software combines Just Systems' Ichitaro word processor with database, and spreadsheet and memo functions.

•**Sharp** has announced that it will release an English-language pen-input electronic notebook in Europe and the US early next year. This is the first product developed in cooperation between Sharp and Apple Computer, and differs considerably from Apple's recently announced Newton

NT to developers, and people who have worked with it and OS/2 claim that Windows NT will be much more popular than OS/2 for many technical reasons. NT offers most of the major features of OS/2, has better networking capabilities, and is much closer to the Windows user interface. Companies that need file servers will look long and hard at NT, which may preclude enough sales of OS/2 to hurt IBM in the long run.

In this sense, the agreement is a win-win situation for the companies and their customers. It means that you will be better able to predict the long-term success of a particular operating system before you buy it, and hopefully will read less about sniping between the two companies. It allows them both to try to woo hardware vendors and software authors to support their operating systems based on the merits of the systems instead of the fear of the future. The biggest unknown about the contract is what advantage either side will be able to take of the patent cross-licensing.

MICROTIMES STOCK INDEX

EXCH	COMPANY		TICKER SYMBOL	CLOSING PRICE 06/05/92	CLOSING PRICE 07/02/92	NET CHANGE IN MONTH	PERCENT CHANGE IN MONTH	ANNUAL P/E RATIO	ANNUAL DIVIDEND RATE	ANNUAL DIVIDEND YIELD	ANNUAL HIGH	ANNUAL LOW
	SOFTWARE											
OTC	Adobe		ADBE	46.38	44.75	-1.63	-3.50	19	0.32	0.72	68.50	37.50
OTC	Aldus	L)	ALDC	20.50	13.00	-7.50	-36.59	9	0.00	0.00	45.50	11.50
OTC	Autodesk		ACAD	36.00	37.13	.13	3.13	18	0.48	1.29	57.25	23.25
OTC	Borland	(L)	BORL	51.75	41.00	-10.75	-20.77		0.00	86.75	37.75	
OTC	Informix		IFMX	33.50	29.00	-4.50	-13.43	17	0.00	0.00	36.00	5.50
OTC	Lotus	(L)	LOTS	28.38	18.25	-10.13	-35.68	14	0.00	0.00	40.75	17.75
OTC	Microsoft	(s)	MSFT	80.67	69.88	-10.79	-13.38	32	0.00	0.00	88.84	40.34
OTC	Novell		NOVL	56.00	53.75	-2.25	-4.02	39	0.00	0.00	65.00	23.88
OTC	Oracle		ORCL	15.50	16.88	1.38	8.87	38	0.00	0.00	21.13	7.88
OTC	Software Publishing	(L)	SPCO	13.88	8.88	-5.00	-36.04	0.00	0.00	26.25	8.25	
OTC	Symantec		SYMC	42.25	37.50	-4.75	-11.24	50	0.00	0.00	51.00	21.88
	HARDWARE											
OTC	Apple		AAPL	54.88	46.25	-8.63	-15.72	17	0.48	1.04	70.00	41.75
OTC	AST Research	(L)	ASTA	17.63	13.88	-3.75	-21.28	6	0.00	0.00	32.25	12.00
NYS	Commodore	(L)	CBU	1.75	10.13	-1.63	-13.83	6	0.00	0.00	19.25	9.50
NYS	Compaq		CPQ	28.75	24.50	-4.25	-14.78	35	0.00	0.00	37.50	22.13
NYS	Digital Equipment	(L)	DEC	40.50	33.75	-6.75	-16.67		0.00	1.75	33.25	
OTC	Dell		DELL	23.13	17.75	-5.38	-23.24	11	0.00	0.00	29.00	13.91
NYS	Hewlett-Packard		HWP	72.38	66.88	-5.50	-7.60	18	0.80	1.20	85.00	44.63
NYS	IBM		IBM	90.38	96.88	6.50	7.19	4.84	5.00	106.38	81.63	
NYS	Silicon Graphics		SGI	17.63	17.50	-0.13	-0.71	22	0.00	0.00	29.75	14.00
OTC	Sun Microsystems		SUNW	26.50	26.13	-0.38	-1.42	13	0.00	0.00	35.88	20.75
NYS	Xerox		XRX	74.00	69.75	-4.25	-5.74	17	3.00	4.30	82.25	52.63
NYS	Tandy	(L)	TAN	28.13	23.25	4.88	-17.33	11	0.60	2.58	31.25	23.25
	CPU'S											
NYS	Advanced Micro Device	(L)	AMD	15.00	7.63	-7.38	-49.17	3	0.00	0.00	21.50	.63
OTC	Intel		NTC	50.00	5.88	5.88	11.75	15	0.00	0.00	68.75	38.50
NYS	LSI Logic	(L)	LSI	7.13	6.75	-0.38	5.26	45	0.00	0.00	9.88	5.88
NYS	Motorola		MOT	82.25	76.63	-5.63	-6.84	22	0.76	0.99	83.75	54.0
	COMMUNICATIONS											
NYS	AT&T	T		42.13	43.88	1.75	4.15	93	1.32	3.01	44.63	2.88
NYS	BellSouth Corp.		BLS	47.75	49.75	2.00	4.19	15	2.76	5.55	52.63	43.38
OTC	MCI		MCIC	32.25	32.25	0.00	0.00	16	0.10	0.31	36.13	25.25
NYS	Northern Telecom	(L)	NT	9.50	37.00	-2.50	-6.33	18	0.32	0.86	49.25	34.13
NYS	Pacific Telesis		PAC	40.88	40.75	-0.13	-0.31	15	2.16	5.30	45.00	36.88

Notes: Microsoft completed a 3-for-2 stock split. MIPS merged with Silicon Graphics and was removed from our list.

KEY: NYS = NEW YORK • ASE = AMERICAN • OTC = OVER THE COUNTER • (H) = NEW HIGH REACHED IN PERIOD • (L) = NEW LOW REACHED IN PERIOD

MARKET DIARY:

ADVANCES.	6
DECLINES	25
UNCHANGED	1
NEW HIGHS	0
NEW LOWS.	11

MOST ACTIVE ISSUES:

LARGEST DOLLAR GAINER	IBM	$ 6.50
SMALLEST DOLLAR LOSER	Microsoft	$ -10.79
LARGEST PERCENTAGEGAINER.	Intel	11.75 %
SMALLEST PERCENTAGE LOSER	Advanced Micro Devices.	-49.17 %

CLOSING QUOTES:

	CLOSE 06/05/92	CLOSE 07/02/92	NET CHANGE IN MONTH	PERCENT CHANGE IN MONTH	DATE	MICRO TIMES	DOW JONES
					12/12/91	3254.85	2895.13
					01/20/92	3961.41	3254.03
					02/14/92	3984.10	3245.97
MICROTIMES STOCK INDEX	`3562.74	3182.43	-380.31	-10.67	03/13/92	3888.19	3235.91
DOW JONES INDUSTRIAL AVERAGE	3398.69	3330.29	-68.40	-2.01	04/10/92	3566.89	3255.37
STANDARD & POOR'S 500 STOCK INDEX	413.48	411.77	-1.71	-0.41	05/08/92	3642.36	3369.41
N.Y.S.E. COMPOSITE	227.88	226.41	-1.47	-0.65	06/05/92	3562.74	3398.69
NASDAQ COMPOSITE	585.43	563.35	-22.08	-3.77	07/02/92	3182.43	3330.29

©Copyright Nordby International, Inc., Boulder, CO. This information is based on sources believed to be reliable, and while extensive efforts are made to assure its accuracy, no guarantees can be made. Nordby International and MicroTimes assume no liability for any inaccuracies. Customized reports for any industry or region are available upon request from Nordby International, (303) 449-0326.

TECH WRECK TAKES TOLL ON COMPUTER STOCKS

Tremors of another nature rumbled through the high tech sector during the month of June, as investors took technology stocks to the woodshed following an onslaught of unexpectedly negative earnings news.

And nowhere was the beating more severe than in the MicroTimes Stock Index, which surrendered 380.31 points, or 10.7% before bottoming out at 3182.43—an eight-month low for our index of 32 stocks tracked in the accompanying table.

In a bit of irony, computer stocks were victims of computer trading during the month, as the burgeoning price war in the personal computer industry sent shock waves through Wall Street. Such stiff competition on price took its toll on the following concerns last month: Apple (down 15.7%), Compaq (off 14.8%), and Dell (down 23.2% to $17.75), among others.

IBM, on the other hand, dodged the sell-off and continued its recent positive run, as shares in the firm once again led all dollar-gainers in our index. For the period, shares in the company gained $6.50 before ending at $96.88. The rise came on positive recommendations from Wall Street analysts, many of whom raised their earnings estimates for IBM during the week. Separately, a *Wall Street Journal* profile said insiders were net buyers of IBM stock for the first time in two years.

Microsoft split its shares 3-for-2 last month in an attempt to make its shares more affordable to investors. Brokerage firms lowered their short-term ratings on the company last month to "hold" from "buy" after a strong rally in Microsoft's stock price. The result: Microsoft was the largest percentage casualty of the lot last month, as it toppled $10.79 a share to $69.88.

RESOURCE INFORMATION SYSTEMS

Hardware ■ Software ■ Service ■ Rentals

QUALITY SALES AND SERVICE SINCE 1986

Member Of The Better Business Bureau

All Systems Include a 5 Year Warranty

See Extended Hardware Warranty Service Agreement For Details

286-16 MHz	$ 600
386SX-16 / 25 MHz	625/650
386-25 MHz	700
386-33 MHz w/Cache	725
386-40 MHz w/Cache	750
486-33 MHz w/Cache	1050
486-50/2 MHz w/Cache	1275
486-50 MHz w/Cache	1375

Basic System Configuration Includes:

- Intel or AMD CPU
- Shadow RAM for remapping System and Video BIOS
- 200+ Watt Power Supply
- Teac 1.2 MB 5 1/4" Floppy
- 1 to 1 IDE Controller
- Samsung Amber 12" Monitor
- Key Tronic 101 Key Keyboard
- 2 Serial, 1 Parallel, 1 Game Port
- Built-in Setup
- AMI BIOS
- Desktop or Mini Tower Case
- Seagate 44 MB Hard Drive
- 1 Meg of Ram Memory
- Teac 1.44 MB 3 1/2" Floppy
- 8 Expansion Slots and Math Co-Processor Socket
- Monochrome Graphic Card
- Real Time Clock and Calendar w/ Battery Backup

Some Upgrades For Above Systems:

1 MB Memory - 70 NS	Add	$ 30
80-90 MB IDE Hard Drive	Add	100
100-110 MB IDE Hard Drive	Add	125
120-130 MB IDE Hard Drive	Add	175
200-220 MB IDE Hard Drive	Add	375
VGA Color Graphic Card	Add	20
SVGA 1024x768 1 MB Card	Add	60
SVGA 14" 1024x768 .39 DP Monitor	Add	175
SVGA 14" 1024x768 .28 DP Monitor	Add	200
MS DOS 5.0	Add	35
MS Windows 3.1 UPG	Add	40
2 or 3 Button Mouse	Add	20
Zoom 96/24 Baud Int. Fax Modem	Add	105

All RIS Computers Are 100% IBM Compatible, Custom Built, And Burned-In For 48 Hours To Assure Reliability

ALR

Advanced Logic Research, Inc.

PowerFlex Flyer 386SX/25 60 HD	$ 900
BusinessVEISA 386/33 Model 101	1525
BusinessVEISA 486/33 Model 101	1875
Ranger Notebook 486SX/25 80 HD	3125

EVEREX

EVER for EXcellence

Step 386/33 1MB 64K Cache	$ 1800
Step Megacube 12 Slot 8MB ESDI	3575
Tempo Notebook 386SX/20 3MB 60 HD	1500
Carrier Notebook 386SX/20 2MB 40 HD	1800

AST COMPUTER

Exec Notebook 386SX/25 4MB 80 HD	$ 2250
Exec Notebook 386SX/20 2MB 40 HD	1475
Bravo 486/33 Model 3	1475
Premium II 486/33 Model 3	2350

OKIDATA

OL400 Laser 4 PPM	$ 625
OL810 Laser 8 PPM PCL5	1075
OL830 Laser 8 PPM Postscipt	1275
ML380 24 Pin	225

Hard Drives

Quantum 120 MB 8MS	$ 350
Maxtor 130 MB 15MS	335
Seagate 130MB 15MS	325
WD 120 MB 15MS	325
WD 210 MB 16MS	500
Quantum 240 MB 8MS	625

Memory

256K SIMM - 80	$ 10.50
1 Meg SIMM - 70	30.00
1 Meg SIPP - 70	33.00
256 x 1 - 80 DRAM	1.10
256 x 4 - 80 DRAM	4.40

Printers

Panasonic KX-1180I	$ 175
Panasonic KX-1124I	300
Panasonic KX-2624 Wide	400
Citizen GSX 145 Wide	370
Citizen 200GX 9 Pin	175

NOVELL

Netware 3.11 & 2.2	CALL
Netware Upgrades	CALL
NE 2000 Ethernet Card	150
Intel Ether Express 16 TP	125
SMC Concentrator 8 Port Hub	325
Installation/Maintenance	CALL

Technical Support Ex. 901
Corporate & Government Ex. 204
Wholesale & Consultants Ex. 106

1 Blk. S of Roscoe, 1/2 Blk. E of Balboa
16760 Stagg Street, Suite 202
Van Nuys, CA 91406
(818) 786-7745
Hours M-F 8:00-6:00 Sat. 8:00-5:00

Monitors

NEC 3FGx 15" 1024x768 .28 DP	$ 675
NEC 4FG 15" 1024x768 .28 DP	775
Sony 1304 HG 14" 1024x768 .25 DP	625
ViewSonic7 17" 1280x1024 .28 DP	1100
SVGA 14" 1024x768 .28 DP	300

Monitor Cards

ATI XL 1024x768 1MB w/Mouse	$ 150
Fahrenheit 1280 1MB VRAM	285
Prodesigner II S 1MB	185
SVGA 1024x768 1MB	70

Mother Boards

286-16	$ 70
386SX-16 / 25	110 / 120
386-25	165
386-33 w/64K Cache	195
386-40 w/64K Cache	205
486-33 w/64K Cache	475
486-50/2 w/256K Cache	660
486-50 w/Cache	750

All Software Available at 20% to 75% Off List Price

Corporate, Government and Wholesale Pricing Available ■ On Site Maintenance Service Available

All Trademarks Acknowledged ■ Prices Subject to Change Without Notice ■ Visa and Mastercard Accepted

World-Class Portable

A Dynamo Under Your Arm

Just because you're on the road doesn't mean you have to surrender the dynamic computing power you need. You can carry amazing capacity in your briefcase !

Sager offers several portatble 33MHz 386DX and 486DX power stations in notebook sized configurations. Shown here are the NP-205 (a 386DX/33) and the NP-206 (a 486DX/33).

These potent processing stations easily manipulate large database programs. They deftly transmit complex networking communications. Likewise, they breeze through demanding Windows applications as well as any stationary desktop system.

The Sager NP205 and NP206 are equally at home in the office or on the road. When you're in a vehicle, run the optional car adapter/charger. When you're in an office, use the included AC adapter/charger with our optional docking station for full desktop functionality.

Our NP200 series uses a standard 3.5" hard drive format. It's easy to upgrade your system with all the capacity you need, up to 240MB !

Use Sager's optional stand-alone battery charger to charge one set of batteries while you're using the other set. You'll never have to wait for a recharge again !

Your NP200 will include robust, adaptable power management software, enabling you to extend your work-time even further. You will program the sleep mode for the hard disk, the auto screen power-off. You might even adjust your CPU speed. Alternatively, you can simply accept our built-in default values and get directly to work !

There's true number-crunching brawn available exactly when and where you need it. The NP200's provide pure computing muscle - from Sager, the power portable people !

OPTIONS :

▲ Additional Battery pack
▲ Additional Battery Charger
▲ Docking Station
▲ Car Adapter/charger

Call for Dealer VAR, Gov't & Corporate Pricing
SAGER

486DX-33 NP-206 $2495

386DX-33 NP-205 $2045

- 4 MB RAM, EXP. to 16MB
- 8K Cache Memory (486DX-33)
  32K Cache Memory (386DX-33)
- Ext. Numeric Key Pad Included
- Changeable Ni-Cad Battery
- 120MB HD (80, 200 or 240MB optional)
- 3.5" 1.44MB Floppy Drive
- 640 x 480 LCD VGA Monitor
- 81-Key Keyboard
- 2 Serial and 1 Parallel Port
- External Ports for VGA Monitor, 101 Keyboard, Numeric Keypad, AT Bus for Docking Station
- MS Windows 3.1 & MS-DOS 5.0
- 11"W x 8.6"D x 2"H
- Carrying Bag & A/C Adapter

386SL-25 NP-305 $2195

- Intel 386SL-25 with 64K cache memory
- On-CPU firmware power management
- 4MB fast RAM, expandable to 6MB
- Removable 80MB hard disk (40/60/120MB optional)
- Built-in 3.5" 1.44MB floppy drive
- 3-8 hours battery with Sager Quick Charger
- 10" Backlit LCD with 64 gray scale
- 81 key fullsize keyboard with *inverse-T* cursor control keys
- Ports-1S, 1P, Ext. keyboard/keypad, PS/2 mouse, scanner, simultaneous CRT display
- 6.8lbs with battery, 8.7"x11.5"x2.1"
- MS-DOS 5.0 & Windows 3.1
- Padded carrying case

Power from Sager !

Call for OEM, VAR, Gov't & Corporate Pricing

SAGER

386DXL-33 NP-933 $2045

386SXL-25 NP-925 (2MB,60MB) $1675

386SX-20 NP-913 (2MB,60MB) $1550

- 4MB RAM, Expandable to 12MB
- 80MB HD (40/60/120MB optional)
- 3.5" 1.44MB Floppy Drive
- 9.5" Diagonal, LCD VGA display with 64 Gray scale
- 3-6 Hours Super Longlife Battery
- Full Suspend/Resume function (NP-933)
- 1 Serial and 1 Parallel Port
- Ports for VGA mon., keybd & 5.25" drive
- 83-Key Keyboard
- MS Windows 3.1 & MS-DOS 5.0
- Carrying Bag & A/C Adapter
- Weight 7.7 lbs with Battery
- 12.2"W x 9.5"D x 1.7-2.1"H

SAGER
The Portable Power People

800-669-1624

In CA: 818-964-8682 Fax: 818-964-2381
18005 Cortney Court, City of industry, CA 91748
Hours: Mon-Fri, 7:30AM-6PM; Sat, 9AM-3PM (PST)

CALIFORNIA
COMPUTER
SYSTEMS

818-304-0882

Fax: 818-304-1154
950 East Colorado Boulevard, Pasadena, CA 91106
Hours: Mon-Fri, 9:30AM-7PM; Sat, 10AM-6PM (PST)

VISA

DISCOVER

Expand Your Portable Horizons

Sager's NP900 series portable Comes in your choice of 3 powerful CPU's - the practical 386SX-20, the proven 386SXL-25, and the efficient new 386DXL-33. Each version of the adaptable NP900 is accompanied by an impressive list of standard user features and creative options.

Powerful Standard Features

You'll get 2 large 1400mA battery packs for 4.5 hours of constant operation, An auto-switching AC adapter/battery charger lets you work and charge at the same time.

The large, paper-white LCD screen is 9.5" wide and boasts 64 levels of gray scale. You'll get razor-sharp, lifelike graphic details, even while displaying color images !

Its unique, ergonomic keyboard is wedge-shaped to make typing easier. Thousands of users report it is so easy to use that they never use the external keyboard port. Other ports include a serial and a parallel port, as well as connections for an external VGA and floppy drive.

Choices for creative connectivity

Communicate with a plug-in modem, fax or combination fax/modem module. Scan any document and fax it instantly with the fax/scanner module. Hook into optional CD storage with the SCSI interface. Link up to MPC with the voice mail pack. Add a second serial port to drive another printer or other serial peripheral. Pop-in a car adapter. Link-up to Big Blue with an IBM 3270 emulation module, an ArcNet interface, or the optional ethernet (LAN) module. Attach a 2nd floppy disk drive with the FDD/RS-232 module. They all slide into your NP900 as easily as a cassette tape !

OPTIONS :

▲ Car adapter
▲ Fax/scanner
▲ Ext FDD/RS-232
▲ Fax & modem
▲ Ethernet (LAN)
▲ 2nd Serial port
▲ IBM 3270 Em-ulation
▲ Modem
▲ SCSI interface
▲ Quick Charger
▲ Others

Desktop Publishers' Missing Machine

The Online Presidential Debate

BY JIM WARREN

Copyright © 1992 by Jim Warren, 345 Swett Rd., Woodside, CA 94062; email/ jwarren@well.sf.ca.us. Permission herewith granted to copy-in-full for nonprofit purposes. Jim Warren founded InfoWorld, *the* DataCast *proposal for paperless electronic newspapers, Wireless Digital, Initiative, Inc., and one of the nation's largest public microcomputer conventions. He was founding host of* PBS's Computer Chronicles, *founding editor of* Dr. Dobb's Journal, *and has chaired various computer trade and professionals organizations. He holds graduate degrees in computing (Stanford), medical information science (UC Medical Center), and mathematics and statistics.*

He organized and chaired the landmark First Conference on Computers, Freedom & Privacy (1992), sponsored by a dozen nonprofit and industry organizations, received one of the first Electronic Frontier Foundation Pioneer Awards (1992), and is a member of the board of directors of Autodesk, Inc.

These are "fantasies" only because we've not yet implemented 'em.

ONLINE PRESIDENTIAL DEBATES

I have asked the major presidential candidates to join in an online debate using the global Internet—in their spare time, spread over one or several weeks.

REALIZABLE FANTASIES

The **Clinton** campaign has agreed to participate, subject to "scheduling availability."

The **Perot** campaign's Dave Meyerson said they are getting their computer operation organized. They did not seem interested in using a CompuServe (CIS) or America OnLine (AOL) account or any of the low-cost accounts on commercial Internet hosts — such as the other campaigns are using.

The **Bush-Quayle** campaign's press secretary, Torie Clark, wrote that the proposal was "very interesting," adding that Bush gets "thousands of noteworthy requests every week, and unfortunately he cannot accommodate every one." He was passing it along to their director of communications for review.

Within three weeks of my invitation—and before the June primaries—the Clinton, Brown, and Marrou (Libertarian) organizations had agreed to participate, but no other major player had signed on. (Immediately after those primaries, Buchanan went in for heart surgery.)

AUDIENCE IS BIG ENOUGH

Recent analysis indicates eight to fifteen million people are networked through about 1.3 million computers, connected to the co-op-style Internet. Users include many of the nation's national, regional, state, and local community leaders, decision makers, and opinion makers.

One to three million use the free, worldwide, co-op "paperless newspaper" and bulletin board known as USENET, available over most of Internet and other nets—on which the debate and related global discussion are proposed to take place.

Many pay nothing for Internet and USENET access—through work, school, or the tens of thousands of microcomputer BBSs that carry USENET. Others pay $15–$20 per month—about half the cost of a premium cable TV channel—to use one of the numerous low-cost or nonprofit host-computers that include Internet access.

CompuServe Information Service (CIS) and America Online (AOL) could access the debate and discussion via volunteers from among thousands of people who have dual access—using both an Internet host and CIS or AOL. (CIS and AOL now have gateways to the Internet.)

"Plodigy," however, seems content to keep its users disconnected from the rest of the increasingly networked world.

ADVANTAGES OF ONLINE DEBATE

- Discussion via publicly-networked computers negates "schedule conflicts." Participants can post questions and comments at any time from any place—via phone or wireless connection, with no more than a laptop-with-modem.

- The audience is global. One need not be "present"—online—during the debate, nor be in the same nation. Interested citizens don't even have to successfully program their VCRs.

- Candidates' comments and responses need not be limited by time or length. They can make brief statements—all that's possible in a time-limited live debate. But they can also post complete position statements.

- Candidates can take several days in which to draft concise, complete, factual responses to questions. They can consult advisors—just as any president would be expected to approach any important issue. The idiotic pretension of instant expertise on all issues—essential in face-to-face debates—is unneeded.

> *In an online debate, candidates' comments form a globally accessible permanent record.*

- Candidates' comments form a permanent record, globally accessible, machine searchable for topics of interest by word or phrase. Reporters can get accurate and complete quotes—and citizens can verify accuracy and review context.
- Substantive responses—and the lack thereof—become obvious. Controversy over issues of fact are typically addressed within hours, from a global basis of knowledgeable individuals and researchers, with the complete discussion visible for all to see.
- The debate is more likely to focus on information and positions—not emotional posturing, coiffure, makeup and façade. (Who knows? If this catches on, perhaps someday even someone as homely as Abe Lincoln could again be elected president.)
- In parallel with—and long after—the debate, the global audience can discuss the candidates' comments, visible to the whole world via international public online forums; they can do this within small groups via private teleconferences, and one with another via personal email.

WHY DO FORTUNE 1000 COMPANIES BUY FROM US?

HIGHEST QUALITY, RELIABILITY, SUPPORT, SERVICE & TRAINING

MACINTOSH®
Authorized Dealer

Apple® Macintosh® Quadra™ 700 and 950. Highest performance, most expandable Macintosh. Excellent choice for technical professionals

IN STOCK

Apple® Macintosh® IIsi 3/40-5/80. Excellent choice for business, education, or home. Color and sound capabilities.

$1880/$2280

Apple® Macintosh® LC II. Combines color with a memory capability that lets you use more applications simultaneously.

$1369 w/keyboard

Apple® Macintosh® Powerbook™. The power to be your best®. A small, efficient, totally portable office.

$2135	$2615	CALL!
140/2/40	140/4/80	170/4/80

HEWLETT PACKARD
Authorized Dealer

HP III LaserJet Printer *IN STOCK*

- Highest print quality in its class
- More fonts and scalable typefaces
- LaserJet compatibility protects your software investment

HP IIIP LaserJet $1025

- Superior 300-dpi print quality
- PCL5 allows you to scale type to thousands of sizes
- All the HP LaserJet III printer features in a compact size and at a low price
- Prints fonts, graphics, and complex documents faster than other laser printers in its class

FREE DELIVERY OF TONER- DOWNTOWN ONLY

HP IIIsi LaserJet NOW IN STOCK

- Advanced paper-handling
- Resolution Enhancement for the best 300-dpi printing
- Ideal for high-volume, multi-user environments
- Wide variety of easy-to-use, scalable, built-in typefaces
- Prints 17 pages per minute

HP Paint Jet XL300 $2250

- High quality color charts & graphics
- PC or Macintosh compatible
- Wide range of software support

HP IIP Plus $800

- 300 dpi text and graphics provide publication quality printing
- Small footprint makes this the ideal desktop HP LaserJet printer
- Support by virtually all popular PC software packages ensures maximum use.
- Paper handling, additional memory, printer language and font accessories expand functionality.

HP LaserJet Fax

CALL!

- Receive plain-paper faxes on your HP LaserJet Printer
- Send faxes right from your PC
- Fax printed pages from the document feeder

MicroAge
Computer Centers

707 West Seventh Street
Los Angeles, CA 90017
(213) 622-5750 FAX (213) 622-5762

SYSTEMS UPGRADE CENTER

Memory Upgrades While You Wait.*

Expanded Services From Upgrades to Complete Systems!

Linnex Computer proudly announces a new level of service and support designed to provide maximum utilization of your computer system at a very low price.

*Call for details

Since 1984...

More Than 10,000 Systems Sold to Satisfied Customers

The Most Knowledgable Technical Support Available

Complete Showroom

Major Brand Components

Networks

Complete NOVELL 4-User System

$249/Lease Mo.

System Includes:
386-40MHz File Server, 4MB RAM, 130MB Hard Drive, Floppy Drive, 16-bit Network Card, Mono Monitor, Printer Port, 101 Keyboard

Four 386SX-25 Stations, each with 2MB RAM, 40MB Hard Drive, Floppy Drive, 16-bit Network Card, SVGA Monitor & Card, 101 Keyboard

Novell Netware 3.11 Software (5 Users), Cabling, Setup & Training.

Service Maintenance Optional

Cash Price

4MB RAM Upgrade (Includes Installation) $149

16MB RAM Upgrade (Includes Installation) $599

SVGA Display Upgrade (Includes 1024x768, 1MB Card, 32,000 Colors, .28 mm, Non-Interlaced Monitor & Installation) $399

386DX-33 Upgrade (Includes 4MB RAM & Installation) $429

All-In-One 486/386 Motherboard... Upgradeable To 486 By Changing CPU Only!

486DX-33 Upgrade (Includes 4MB RAM & Installation) $729

LNX® SuperSystems

LNX® 386SX-25 $875
1MB RAM, 40MB Hard Drive, 1.2MB or 1.44MB Floppy Drive, Non-Interlaced VGA Monitor & Card, 101 Keyboard, Mini Tower Case, 2 Serial, 1 Parallel, 1 Game, Mouse

LNX® 386DX-40 $1295
4MB RAM, 120MB Hard Drive, 1.2MB and 1.44MB Floppy Drive, Non-Interlaced SVGA Monitor & Card, 101 Keyboard, Mini Tower Case, 2 Serial, 1 Parallel, 1 Game, Mouse

LNX® 486DX-33 $1595
4MB RAM, 120MB Hard Drive, 1.2MB and 1.44MB Floppy Drive, Non-Interlaced SVGA Monitor & Card, 101 Keyboard, Mini Tower Case, 2 Serial, 1 Parallel, 1 Game, Mouse

486DX2-50MHz System..........add $250

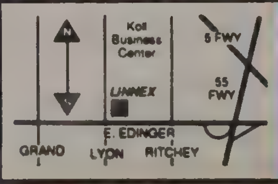
LNX® NOTEBOOK $1595
386SX-20MHz, 3MB RAM (exp. to 5MB), 60MB HD, 6.6 lbs., (inc. Battery) VGA LCD Display, 1.44MB Floppy Drive, Charger & Case

We also configure complete systems to your specifications.

LINNEX COMPUTERS, INC.
1701 E. Edinger, Suite C-3
Santa Ana, CA 92705
Fax: (714) 558-3219

Visit our showroom for demo and books.
All systems warrantied, 48-hour burn-in.

(714) 558-3399



WANT IT? ASK FOR IT!

Email: Clinton: 75300.3115@CompuServe.com. Marrou: 75300.3114@CompuServe.com.Brown: brown92@well.sf.ca.us, brown@igc.orgor 75300.3105@CompuServe.com. Buchanan: 76326.126@CompuServe.com.

Snailmail and fax for disconnected candidates: Bush: Attn. Will Feltus, Director of Communications, 1030 15th St. NW, Washington DC 20005; fax (202)336-7117. Perot: attn-Dave Meyerson, Box 517010, Dallas TX 75251; fax (800)925-1300.

Credit where credit's due: Of these major candidates, the Jerry Brown campaign was the first to respond, the first to use public computer forums as a campaign tool, and the first with "online presence" on multiple systems.

LOW-COST LABELERS FOR MODERATE MAILERS

We need desktop labelers that can label a few thousand pieces an hour—30–100 per minute, about 15,000–50,000 per workday. At prices comparable to HP's early LaserJets, perhaps as high as $3,000 to $5,000. Comparisons: Desktop folders cost under a kilobuck, are a bit larger than laser printers and can multiple-fold 11" x 17" sheets at hundreds per minute. Postage - stamping machines of similar price and size are even faster.

Desktop labelers should use ink-jet technology—for office quietness, image freedom and resolution, speed, reliability, and tolerance of varying papers and mailers.

The ink must *not* be water soluble. Otherwise rain, sleet and snow—and even sweat—may illegibly besmirch the postal person's appointed rounds.

Mass-market desktop labelers—like mass-market laser printers—can limit the sizes of pieces they can process. They should handle pieces as small as postcards, as large as 11" x 17" envelopes, and as thick as—say—MicroTim*es'* Northern California edition, e.g. a half-inch or more.

Their print heads should allow at least 0-, 90-, 180-, and 270-degree text orientation and print lines at least 8" or 9" long, located on almost any part of a potential 11" x 17" mailing piece. If necessary, orientation and location could require manual repositioning of the print head or print bar, just as pin-feed printers permit adjusting for paper width and position. Full-length, fixed 17" printbars should be available options.

They should print at least ASCII characters and Postnet bar codes, and should accept LaserJet and/or Mac QuickDraw commands. PostScript should be an economical option. (Forget TrueType, unless it someday offers substantial, permanent consumer benefits unavailable from PostScript. Let TrueType's proprietors pugilistically peddle their perverse products.)

SHARE WHERE? SHARE HERE!

Share spare techno thoughts with Realizable Fantasies so we can share 'em with everyone else. 345 Swett Road, Woodside, CA 94062 or email to jwarren@well.sf.ca.us. Published proposals will be attributed to their authors, unless anonymity is requested.■

The Prices You Want...The Service You Deserve!

486DX 33MHz Notebooks!!

All Notebooks Include:

4 Megabytes of RAM (expandable to 16Mb), 3.5" 1.44 Megabyte Floppy Drive, 2 Serial Ports, 1 Parallel Port, VGA Port, External Keyboard\KeyPad Port, External Numeric Keypad, Ni-Cad Battery, AC Adaptor, Carrying Case, and a 1 Year Parts and Labor Warranty!!

Intel 80386DX -33MHz Processor
Socket for 80387 Math Co-Processor
100 Megabyte Hard Drive

$2399!!

Intel 80486DX -33MHz Processor
120 Megabyte Hard Drive
128K Cache

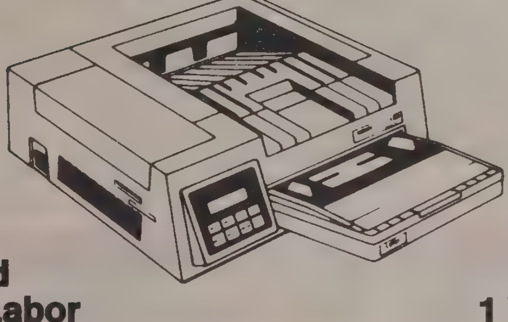
$2999!!

OKIDATA

OL400

$599 !!

4 Page Per Minute
300 Dots Per Inch
17 Resident Fonts
200 Sheet Paper Tray
HP Series II Compatible
Slim, Low Profile Design
5 Year Warranty on Printhead
1 Year Warranty on Parts & Labor



OL830

$1299 !!

8 Page Per Minute
300 Dots Per Inch
2 Megabytes RAM
17 Scalable Fonts
200 Sheet Paper Tray
HP Series II Compatible
5 Year Warranty on Printhead
1 Year Warranty on Parts & Labor

PRINTERS

CANON	
BJ-10ex 64Jet 84CPS 360dpi	329
BJ-300 600CPS 360dpi Narrow	479
BJ-330 600CPS 360dpi Wide	579
LBP-4 4PPM 300dpi Laser	895
CITIZEN	
200-GX 9-Pin	189
GSX-130 24-Pin Narrow	249
GSX-140+ 24-Pin Narrow	299
GSX-145 24-Pin Wide	419
GSX-140/200-GX Color Option	49
GSX-145 Color Option	69
HEWLETT PACKARD	
LaserJet Series III	1475
LaserJet Series IIISI	3495
LaserJet Series IIIP	1050
LaserJet II, III, IIID Toner	89
LaserJet IIP/IIIP Toner	79
DeskJet 500	399

OKIDATA	
MicroLine 320 9Pin Narrow	339
MicroLine 321 9Pin Wide	479
MicroLine 380 24Pin Narrow	239
MicroLine 390+ 24Pin Narrow	479
MicroLine 393 24Pin Wide	995
Laser 400 4-6ppm HP 17 Fonts	599
Laser 810 8ppm HP 26 Fonts	995
Laser 820 26 Bit - 13 Scale	1250
Laser 830 Postscript 8PPM	1299
Laser 840 PostScript / HP 2Mb	1595
Okidata Laser Toner (All Models)	29
PANASONIC	
KX-P1123 24Pin 192cps Narrow	199
KX-P1124i 24Pin Narrow	299
KX-P1180 9Pin 192cps Narrow	169
KX-P1624 24Pin Wide	379

BROTHER

HL-10V 1350

10 PPM, HPCL - 5 (HPIII Compat.), 1Mb RAM, (up to 5Mb), 36 Fonts, 12 Scalable Fonts, Letter/Legal/Envelope Tray, Small Footprint

VIDEO CARDS

ATI Ultra + VGA	499
ATI Wonder XL 1MB	219
Diamond SpeedStar 1MB	219
Diamond Stealth 1MB	299
Hercules Graphics Station	550
Monographics w / LPT Port	29
Paradise 1024 VGA	139
Orchid Farenheit 1280 1MB	299
Orchid ProDesigner IIs 1MB	219
Sigma Legend II	249
Trident (1Mb)	89
Trident 1Mb Hi-Color	150
Video Seven VRAM II	339

CD ROM

Sony 535I (Int.)	399
Sony 535E (Ext.)	425
NEC CDR83M (Int.)	520
NEC CDR84M (Int.)	550

CD ROM Bundles Available

MONITORS

CTX 5468 1024x768 .28 14"	310
CTX 5468NI 1024x768 14"	360
Nanao T550i	1399
Nanao T560i	1899
Nanao T660i	2895
NEC 3FGX	699
NEC 4FG 15" Flat	835
NEC 5FG 17"	1399
NEC 6FG	3150
Idek 5117	975
Idek 5217	999
Inovision - Mag 15FX	699
Samtron 14" Mono Flat	109
Sony 1304 1024x768 .25 14"	599
Sony 1604 1024x768 .25 17"	1099
Taxan 875	1175
ViewSonic 5E	435
ViewSonic 6 14" 1024x768 NI	399
ViewSonic 7 17"	1150
ViewSonic 8 20"	1995

SCANNERS

FULL PAGE SCANNERS	
HP ScanJet + (256 Gray)	1095
HP ScanJet IIC (Color)	1450
Microtek MSF600Z (Color)	1350
Microtek MPII (ASF & OCR)	995
HAND HELD SCANNERS	
Caere Typist (Realtime	429
OCR)	189
Complete Hand Scanner	169
400	299
Logitech ScanMan Plus	259

MODEMS

Best Data 24/96 Fax/Modem Int.	99
Smart One 2400B Int / Ext	69/89
Practical Periferal 14.4 Int.	475
Practical Periferal 14.4 Ext.	500

MICE

Logitech Mouseman Serial	79
Logitech Trackman Serial	89
Microsoft Serial	95
w/ Windows 3.1	159
Dexxa Serial	29

Pricing & Availability Subject to Change

RANTEK
COMPUTER CENTER
22129 Sherman Way - Canoga Park, Ca. 91303
SALES (818) 347-1100 SERVICE (818) 347-5225

All prices are subject to change without notice and reflect cash pricing.

CITICOM COMPUTER INC.

$$$ SAVE $$$
$$$ SAVE $$$
$$$ SAVE $$$

** WHOLESALE TO THE PUBLIC **

We Will Beat Any System Price
In This Magazine *

CITICOM SPECIALS OF THE MONTH

COMPLETE SUPER VGA SYSTEM
486DX-33MHz w/ 256K Cache

$1545

- Intel CPU & AMI BIOS
- Desktop or Mini-Tower Case
- 230W Power Supply
- 4MB RAM (70ns)
- 120MB IDE Hard Drive
- 1.2MB & 1.44MB Floppy Drive
- SVGA Monitor (.28mm)
- SVGA Card w/ 1MB
- 101 Enhanced Keyboard
- 2S, 1P, 1G Ports

COMPLETE VGA SYSTEM
386DX-40MHz w/ 64K Cache

$895

- AMI BIOS
- Desktop or Mini-Tower Case
- 230W Power Supply
- 1MB RAM (70ns)
- 80MB IDE Hard Drive
- 1.2MB or 1.44MB Floppy Drive
- VGA Color Monitor
- 16 BIT VGA Card
- 101 Enhanced Keyboard
- 2S, 1P, 1G Ports

CITICOM BAREBONE SYSTEMS

286-12MHz	$235
386SX-25MHz	$305
386SX-33MHz	$325
386DX-33MHz w/ 64K Cache	$375
386DX-40MHz w/ 64K Cache	$395
486DX-33MHz w/ 256K Cache	$695
486DX-33MHz Local BUS w/ 256K Cache	$795
486DX2-50MHz w/ 256K Cache	$895

System Includes:

- Desktop or Mini-Tower Case
- 230 Watt Power Supply
- 1MB RAM
- 1.2MB or 1.44 MB Floppy Drive
- Dual Floppy & Hard Controller
- 101 Enhanced Keyboard
- 2S, 1P, 1G Ports
- Clock & Calendar
- 1 Year Limited Warranty

Hard Disk Drives

Conner CP3000	40MB IDE (29ms, 9K Cache)	$195
Conner CP30084	80MB IDE (17ms, 64K Cache)	$245
Conner CP30104	120MB IDE (18ms, 32K Cache)	$305
Maxtor MX-7120AT	130MB IDE (17ms, 64K Cache)	$310
Maxtor MX-7213AT	213MB IDE (15ms, 64K Cache)	$495
Quantum LPS52AT	52MB IDE (17ms, 64K Cache)	$225
Quantum LPS84AT	80MB IDE (15ms, 64K Cache)	$265
Quantum LPS105AT	105MB IDE (17ms, 64K Cache)	$295
Quantum LPS12A012	120MB IDE (15ms, 256K Cache)	$315

Monitors

14" Monochrome (Amber)	$ 90
14" VGA Color (.42mm, 800x600)	$205
14" VGA Color (.39mm, 800x600)	$245
14" Super VGA Color (.28mm, 1024x768)	$285
14" Super VGA Non-Interlaced (.28mm, 1024x768)	$315
NEC 3FGX 15" SVGA Non-Interlaced (.28mm, 1024x768)	$645
NEC 5FG 17" SVGA Non-Int. (.28mm, 1280x1024, Dig.)	Call
Sony CPD-1304 14" SVGA Multi-Scan (.25mm, Non-Int.)	$575
Viewsonics 7 17" SVGA (Non-Int. 1280x1024, .28mm)	Call

Printers

Epson LQ-570	$275
Panasonic KX-P1180I	$159
Panasonic KX-P1124I	$280
Okidata ML400 Laser	$625
HP LaserJet IIP Plus	Call
HP LaserJet IIIP	Call
HP LaserJet III	Call

Misc.

High Res. Ser. Mouse	$ 15
Microsoft Ser. Mouse	$ 59
2400 Baud Modem	$ 39
1.2MB or 1.44MB FDD	$ 55
MS-DOS 5.0 (w/ Sys.)	$ 40
MS-Windows 3.1	$ 45
Sound Blaster V1.5	$ 98

Notebook Blow Out Special

386SX-25MHz

- 4MB RAM
- 80MB Hard Drive
- 1.44MB Floppy
- LCD VGA Display
- and many features

$1625

486DX-33MHz

- 4MB RAM
- 120MB Hard Drive
- 1.44MB Floppy
- LCD VGA Display
- and many features

$2295

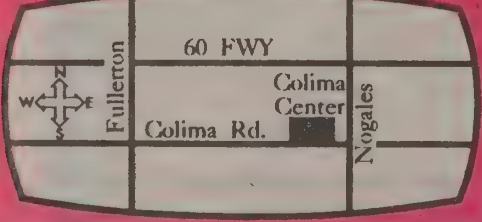
Add-On Cards

MonoGraphics/Printer Card	$ 13
16 BIT VGA Card w/ 256K	$ 35
16 BIT VGA Card w/ 512K	$ 55
TVGA-8900C VGA Card w/ 1MB	$ 75
ATI VGA Wonder XL Card (32,768 Colors, OEM)	$150
Diamond SpeedStar 24 1MB (High Color)	$275
Diamond Stealth 1MB (VRAM, High Color)	$255

Network

Novell Netware Lite
Novell Netware V2.2
Novell Netware V3.11
Lantastic
Network Installation
Network Maintenance

Call

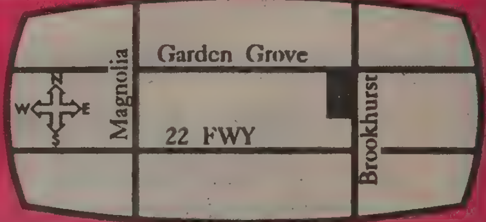


18759 Colima Road
Rowland Heights, CA. 91748
Tel: (818) 913-6555
Fax: (818) 913-5270

Business Hours:
Mon - Fri: 10 - 7
Sat: 10 - 6

GARDEN GROVE BRANCH GRAND OPENING

Terms & Conditions: All parts and systems carry a One Year LimitedWarranty
except monitors and printers which warrant by manufacturers.
Prices and availability subject to change without notice.



13161 Brookhurst St.
Garden Grove, CA. 91641
Tel: (714) 537-3399
Fax: (714) 537-2521

continued from page 19

a composite whole presentation with a high degree of professional quality. All this without the cost it would take to do the same thing on other platforms.

I realize that the market is not that big comparatively, but it has to be put there. It has to be written about; it has to be pushed; you've got to show people what is there and what can be done. There will come a point when the realization occurs, and at that point it will blossom and get very big. Probably to the point of permeating our whole lives.

I would think that your integrity would place you at the front of this line, not dropping it because it's not the popular thing to do. Because it will catch on, and then watch out. The Amiga is a creative engine and there are a lot of people out there with a creative and aesthetic urge.

Maybe Commodore is not the best parent for this child, but sometimes outsiders can do more for the proper nurturing of a child than any parent. Your help on this line could make the difference. It all depends on how you approach it.

It will happen. Are you going to be there?

Mike Rubio
Los Angeles

Well...

As we've said several times now, we're committed to continued support of the Amiga community, and are working on ways to provide ongoing support for this platform.

Rich Grace's article in this issue is one example of the kind of information we hope to provide. Watch for further developments. —eds.

How to reach us

We welcome correspondence from our readers. Letters to the editor should be directed to one of the following physical or electronic addresses:

USMail: Letters, *MicroTimes*,
3470 Buskirk nAve.,
Pleasant Hill, CA.
94523

Fax: (510)934-3958

Internet: microx@well.sf.ca.us

MCI Mail: MicroTimes

COMPUTER WIZ INC.

SERVING YOU FOR 8 YEARS..................... & STILL THE BEST!!!

386sx/25MHz
- 2MB RAM
- Teac 1.2MB 5 1/4" Floppy Drive
- Teac 1.44MB 3 1/2" Floppy Drive
- 80MB Hard Disk
- 16 Bit VGA Card
- 14" Super VGA Color Monitor (1024x768 Res)
- 2 Serial, 1 Parallel, 1 Game Ports
- Enhanced 101 Keyboard
- Mouse
- MS DOS 5.0
- 200-Watt UL Power Supply
- Mini Tower Case
- FCC Class "B" Approved

$1050

386/33MHz
- 4MB RAM
- 64K Cache
- Teac 1.2MB 5 1/4" Floppy Drive
- Teac 1.44MB 3 1/2" Floppy Drive
- 120MB Hard Disk
- 16 Bit VGA Card w/1MB
- 14" Super VGA Color Monitor (1024x768 Res)
- 2 Serial, 1 Parallel, 1 Game Ports
- Enhanced 101 Keyboard
- Mouse
- MS DOS 5.0
- 200-Watt UL Power Supply
- Mini Tower Case
- FCC Class "B" Approved

$1350

386/40MHz
- 4MB RAM
- 64K Cache
- Teac 1.2MB 5 1/4" Floppy Drive
- Teac 1.44MB 3 1/2" Floppy Drive
- 120MB Hard Disk
- 16 Bit VGA Card w/1MB
- 14" Super VGA Color Monitor (1024x768 Res)
- 2 Serial, 1 Parallel, 1 Game Ports
- Enhanced 101 Keyboard
- Mouse
- MS DOS 5.0
- 200-Watt UL Power Supply
- Full Size Desktop
- FCC Class "B" Approved

$1360

486/33MHz
- 4MB RAM
- 64K Cache
- Teac 1.2MB 5 1/4" Floppy Drive
- Teac 1.44MB 3 1/2" Floppy Drive
- 120MB Hard Disk
- 16 Bit VGA Card w/1MB
- 14" Super VGA Color Monitor (1024x768 Res)
- 2 Serial, 1 Parallel, 1 Game Ports
- Enhanced 101 Keyboard
- Mouse
- MS DOS 5.0
- 250-Watt UL Power Supply
- Full Size Tower Case
- FCC Class "B" Approved

$1745

WIZ NOTE
- 25MHz 80386SXL CPU
- 80MB, 19 MS Hard Drive
- 2MB RAM (expandable to 9 MB)
- 3.5", 1.44MB Floppy Drive
- 1 Parallel, 1 Serial & Mouse Port
- * Super Fast VGA Graphics
- Full Size 85 Key Keyboard

$1750

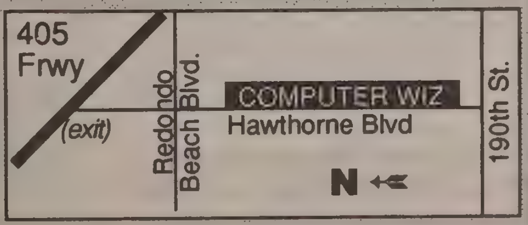
AST PREMIUM EXEC NOTEBOOK

386SX/20MHz
43V $1565
63V 1799

386SX/25MHz
63V $1999
83V 2190
123V 2685

386SX/25MHz Color
63V $2859
83V 3049
123V 3489

COMPUTER WIZ INC.
Tel (310) 371-6553
18506 Hawthorne Blvd.
Torrance, CA 90504



Value-Plus™ Now *Value-Plus*™ Delivers Top

We emphasize superiority

It is a proven fact that now-a-days people want to spend less and they want to get more. In other words, computer buyers expect to get the highest standard of superiority for bottom dollar! At LT Plus, that's exactly our main focus. Along with that comes our standard policy of servicing our clients to the fullest. We know how aggravating it can be to have questions or problems and not to have anyone there to help you. When you have an LT Plus system you also have the comfort of knowing that there's always a professional there to help you. Therefore, when you buy from LT Plus, it means that you'll have the most effecient, reliable and affordable computer with the best service anyone can expect. Amongst computer-users, LT Plus is rated 100% in quality, support, price and overall performance.

We excercise dependability and reliability

Many companies will tell you that they are the most dependable in the industry. However, there is a big difference between saying and actually being the best. After all, action speaks louder than words. At LT Plus, we won't just tell you we're the most reliable, we'll show you that we are. Here's proof: we wouldn't have been around for a decade otherwise. Dependability and reliability ranks right up there with our primary concerns. Perhaps that's why we have such a good reputation.

Satisfaction assurance

Each piece of the hardware and components we use is depictfully selected before it reaches our production line, right down to the very last bolt. We carefully look out for suppliers we should use and avoid the ones we shouldn't. That's why we utilize such name brands as Intel, Conner, AMD, Teac and Maxtor for our component suppliers. Every system is assembled only with the finest of components. We have knowledgeable and experienced technicians assemble every system and they pay meticulous attention to every detail. Every unit undergoes lenghty and rigorous testing throughout every phase of production, consisting of 72-hour diagnostic, preventive and perfection tests, in a state-of-the-art facility. The attention we give our products is tenacious. We strive for perfection to culminate with a superior product, and we do it well.

The LT Plus advantages

We assemble your system(s) specifically in accordance with your custom order, to fit your needs and requirements. We have only professional, courteous and knowledgeable staff to support you for the lifetime of your computer. Since we've already been around for nearly a decade, we've learned, seen and perfected and can offer you invaluable service for a price unparalleled by any other. Remember, from LT Plus you truly get superiority at bottom dollar!

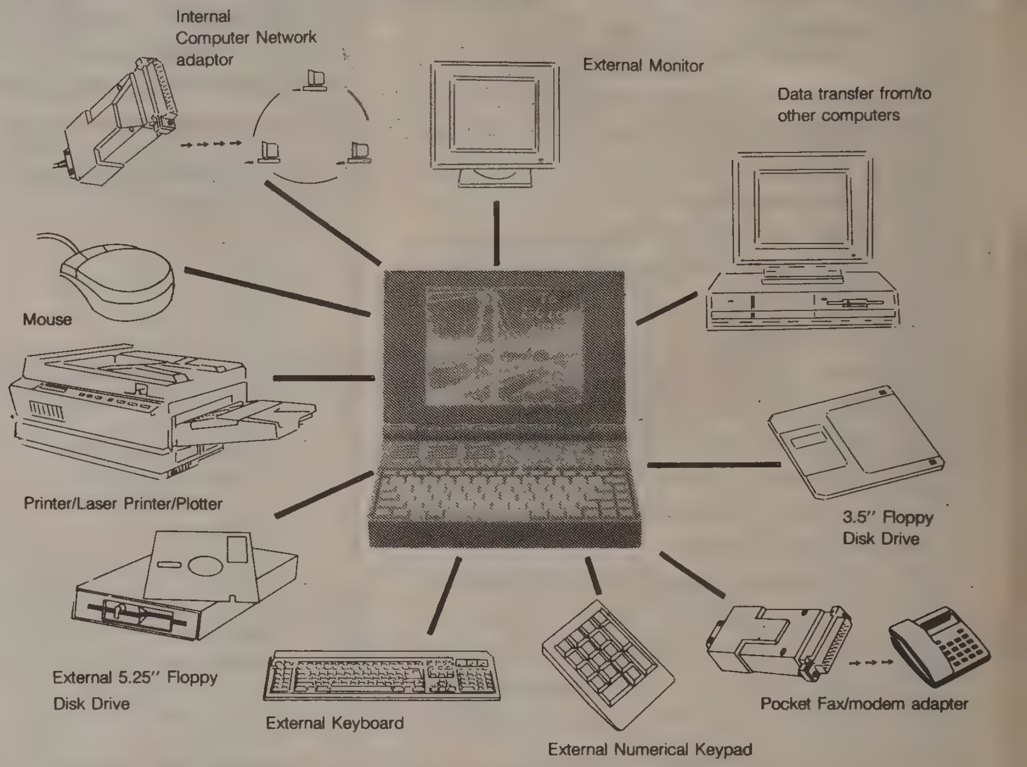
Support, Support and more support

- 30-day free trial
- 12-month parts and labor warranty
- 2nd-day parts replacement
- Lifetime technical support
- 100% satisfaction guarantee
- Full refund with no restocking fee
- 72-hour diagnostic, preventive and perfection tests

The ball is in your court

We invite you to call us toll free at 1-800-333-8144 and discover why LT Plus is the only Value-Plus of computers.

THE NEW COMPUTING STYLE


Internal Computer Network adaptor
External Monitor
Data transfer from/to other computers
Mouse
Printer/Laser Printer/Plotter
3.5'' Floppy Disk Drive
External 5.25'' Floppy Disk Drive
External Keyboard
External Numerical Keypad
Pocket Fax/modem adapter

NOTEBOOK

386SX-20MHz

$1,299
- 386SX-20MHz
- 2 MB RAM exp. to 5 MB
- VGA LCD Display
- 60 MB hard disk drive

386SXL-25MHz

$1,549
- 386SXL-25MHz
- 2 MB RAM
- VGA LCD Display
- 80 MB hard disk drive w/ fax/modem

PROCESSOR
- 80386SX-20
- Dual speed 10/20 MHz
- Socket for 80387SX-20 math coprocessor

MEMORY
- RAM: 1 MB on board, expandable up to 5 MB
- ROM: 64 KB on board, plus 64 KB of Video ROM for VGA BIOS
- Supports EMS 4.0
- Supports VIDEO shadow & shadow BIOS

DISPLAY
- FSTN LCD
- VGA/EGA/CGA/MDA compatible with 640x480, 16 gray scales

KEYBOARD
- 83-Key Keyboard
- All languages available

INTERFACES
- 2 x RS-232C serial ports, D9 and 1 x parallel printer port, D25
- External 5.25" diskette drive port, D25
- External CRT port, D15
- External keyboard, support IBM enhanced keyboard and numeric keypad

POWER
- Rechargeable battery pack 16.5 VDC (nickel cadmium)
- With power management & fast recharge features

ACCESSORIES
- User's manual
- Carrying bag
- Rechargeable battery
- AC-DC adapter

OPTIONAL ACCESSORIES
- Numerical keypad
- External 5.25" FDD case and cable
- 1 and 4 MB S.M.T. RAM card

DIMENSIONS
- 11.8(w) x 8.3(d) x 2.0(h) inch

WEIGHT
- 6.7 Lbs. (INCLUDING BATTERY)

STORAGE UNITS
- 1 x 3.5" FDD (1.44 MB/720 KB)
- 1 x 2.5" HDD (20 MB or 30/40/60 MB option) with autopark
- Universal floppy disk controller for any combination of 3.5" x (1.44 MB/720 KB) or 5.25" x (1.2 MB/360 KB) drives

WARRANTY
- One year limited warranty

386SX is a trademark of Intel Corporation. Other brand and product names are trademarks and/or registered trademarks of their respective companies.

Order Information

- Order Toll Free **800-333-8144**
- Fax Order 714-939-0103
- Internation Order 714-939-1416
- APO/FPO Orders Welcome
- Corporate PO's Accepted with Approved Credit

VISA MasterCard Card FEDERAL EXPRESS UPS

Value-Plus Service Policy

- 1-year part & labor Warranty
- 30-day money back guarantee
- Life-Time Toll-Free technical support 1-800-777-7236
- 2nd day part replacement
- Full refund with no restocking fee
- 100% satisfaction guarantee

Quality Prolific Workstations!

Value-Plus™

WINDOW STATION EISA — CALL

486DX-33 **$1,650**

486DX2-50 **$1,935**

- ◆ Intel486 33MHz processor
- ◆ 4MB RAM, expandable to 64MB
- ◆ 64K cache memory on board
- ◆ 120MB 15ms hard disk drive
- ◆ TEAC 1.2MB 5.25" floppy disk drive
- ◆ TEAC 1.44MB 3.5" floppy disk drive
- ◆ 1 parallel, 2 serial & 1 game ports
- ◆ Super VGA adapter w/1MB
- ◆ 14" 1024 x 768 .28mm color Super VGA monitor
- ◆ **Two 32 bit local bus expansion slots**
- ◆ 101 key click keyboard
- ◆ MS DOS 5.0, MS Windows 3.1 & serial mouse
- ◆ Mid/Full tower case with power supply (220W LED)

Local Bus

SYSTEM UPGRADE:

- ◆ 8MB RAM: +$140
- ◆ 256K cache: +$50
- ◆ Focus 5001 130-key keyboard w/calculator: +$40
- ◆ 340MB hard drive: +$370
- ◆ Non-interlace monitor: +$50

WINDOW STATION UPGRADE:

- ◆ Diamond Stealth: +$190
- ◆ 32-bit Local Bus Accelerator: +$190
- ◆ ViewSonic 17" monitor: +$930

BUSINESS STATION

386DX-33/40 **$1,259/$1,289**

386SX-25 Slim Line **$1,164**

(2x 1.44MB Floppy Drives w/80MB HD and 2MB RAM)

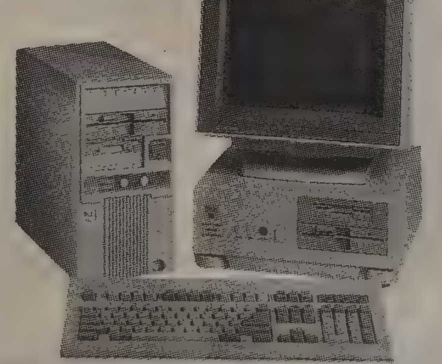
- ◆ Intel386 DX-33/40MHz processor
- ◆ 4MB RAM, expandable to 32MB
- ◆ 64K cache, expandable to 256K
- ◆ 80MB 15ms hard disk drive
- ◆ TEAC 1.2MB 5.25" floppy disk drive
- ◆ TEAC 1.44MB 3.5" floppy disk drive
- ◆ 1 parallel, 2 serial & 1 game ports
- ◆ Super VGA adapter w/1MB
- ◆ 14" 1024 x 768 color Super VGA monitor (.28mm)
- ◆ 101 key click keyboard
- ◆ MS DOS 5.0, MS Windows 3.1 & serial mouse
- ◆ **VP-932 Phone Card (Optional)**

UPGRADE:

- ◆ ViewSonic 6 Monitor: +$100
- ◆ Diamond Speed Star: +$90
- ◆ Fax/Modem card: +$70

Phone Card Included

PERSONAL STATION



386SX-25 **$959**

386DX-25 **$1,029**

- ◆ Intel386 SX/DX-25MHz processor
- ◆ 2MB RAM, expandable to 16MB
- ◆ 80MB hard disk drive
- ◆ TEAC 1.2MB 5.25" floppy disk drive
- ◆ TEAC 1.44MB 3.5" floppy disk drive
- ◆ Shadow RAM & page interleave mode operation
- ◆ 1 parallel, 2 serial & 1 game ports
- ◆ Super VGA adapter w/1MB
- ◆ 14" 1024 x 768 color Super VGA monitor (.28mm)
- ◆ 101 key click keyboard
- ◆ Desktop or Mini Tower case

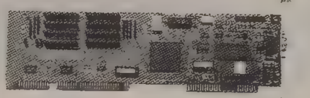
Quality Sales PLUS Service ... Since 1983

LT Plus™

648 N. Eckhoff St., Orange, CA 92668
TEL.: 714-939-1416, FAX: 714-939-0103
HOURS: M - F 7:00AM to 6:00PM
SAT. 10:00AM to 3:00PM (P.S.T.)

UPGRADE YOUR OPTIONS

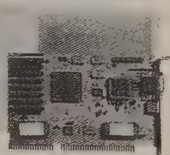
Value-Plus Windows Solutions



Local Bus 32-bit S3 Accelerator
- 50 times faster than regular VGA Card

- High performance XGA (VGA & GUI accelerator)
- LOCAL BUS interface installed on 486DX-33 System
- Resolutions up to 1280x1024 in 16 colors, 1024x768 in 256 colors, 640x480 in 32k colors (64k colors optional)
- Non-interlaced video up to 72Hz (VESA standard) in 1024x768 mode

PC MAGAZINE EDITORS' CHOICE

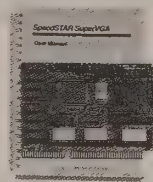


Diamond Stealth VRAM

Welcome to the world of high-performance video! Your ***Stealth VRAM*** card offers features and functionality exceeding any other in its class. Stealth VRAM features included:

- Register and BIOS level compatible with the IBM VGA adaptor
- Extended graphics resolution modes providing up to1280x1024 resolution
- Extended text mode drivers for popular applications like Lotus 1-2-3, Microsoft Word, and WordPerfect
- Extended graphics mode drivers for popular applications like AutoCAD, Lotus 1-2-3, Microsoft Word, Microsoft Windows, WordPerfect, CADKEY, DATACAD, and VersaCAD

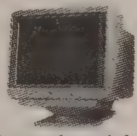
PC MAGAZINE EDITORS' CHOICE



Diamond Speed Star

A state-of-the-art graphics adapter offering features and functionality exceeding any other in the VGA class. The ***SpeedSTAR VGA***™ adapter features include:

- Extended graphics resolution modes providing up to 1024x768 High Resolution
- Extended text modes providing 132x25, 132x28, 132x44, 100x40, and 80x60 resolutions
- Extended text mode drivers in Lotus 1-2-3 and Symphony, WordStar, and WordPerfect; and extended graphics mode drives for Autodesk, AutoCAD, Digital Research GEM, Microsoft Windows and Ventura Publisher



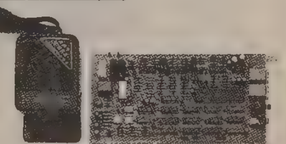
ViewSonic Monitor 17"
Non-interlace & Low Radiation

BUYERS ASSURANCE SEAL RECOMMENDED PRODUCT

"ViewSonic had perfect sizing and superb peripheral focus; it received a near-perfect score on our color-matching scale."

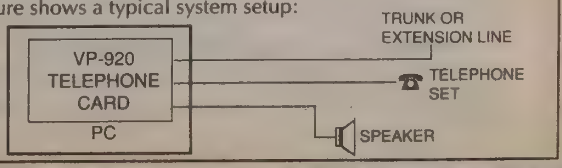
-Infoworld Product Comparison

Value-Plus Office Automation



VP-932 Phone Card

The VP-920 PC Phone System is an IBM PC based telephone message processing system designed for personal and business use. When connected to a phone line either directly or through a private phone system, it provides the following five functions: Voice Mail, Telemarketing, Phone Book Dialing, Auto-recording and Voice Memo. These functions are tightly integrated in a user-friendly environment where the power of computer and communications become one. The following figure shows a typical system setup:



BUSINESS
SOLUTIONS

Introducing A New Monthly Column

Pens And Palmtops: An Overview

BY MITSU HADEISHI

RESOURCES:

ACE DoubleCard
ACE Technologies
1-800-825-9977

Apple Newton
Apple Computer
408-996-1010

Atari Portfolio
Atari Computer
408-744-0880

Casio B.O.S.S.
Casio Corporation,
1-800-762-1241

HP 95LX
Hewlett-Packard
1-800-538-8787

Intel 20 MB Flash RAM card
Intel Corporation
408-765-8080

Two new niches in personal computing are likely to be very closely intertwined in the near future, and this column is intended to cover both of them: pen-based and palmtop computers.

Currently, pen computers are being sold primarily into vertical markets, mostly commercial special-purpose applications such as point-of-sale data entry; they are usually tablet devices that weigh 4to 6 lbs. and cost several thousand dollars.

Palmtops have been a mass-market item for several years now, and are becoming increasingly popular. Pen input is also a natural for the palmtop computer, however. In Japan, there are several pen-based palmtop computers, but the first commercial product to be released in the United States that supports pen entry has just been announced (the Sharp OZ-9600, the latest in the popular line of Sharp Wizard palmtops).

For personal use, palmtop computers can replace the ubiquitous "little scraps of paper" that we all tend to scribble important phone numbers on, and which are inevitably recycled long before the day you're actually looking for that piece of information. Palmtops have a number of advantages over this tried-and-true system: all the information is located in a single, known location, and most palmtops have a number of different convenient techniques for backing up the valuable data (a lot easier than trying to Xerox your address and appointment books).

Pen computers go a step further. Now you can literally jot down the information straight into your computer, rather than writing it down on a scrap of paper and then copying it into your palmtop.

THE ULTIMATE IN PORTABILITY

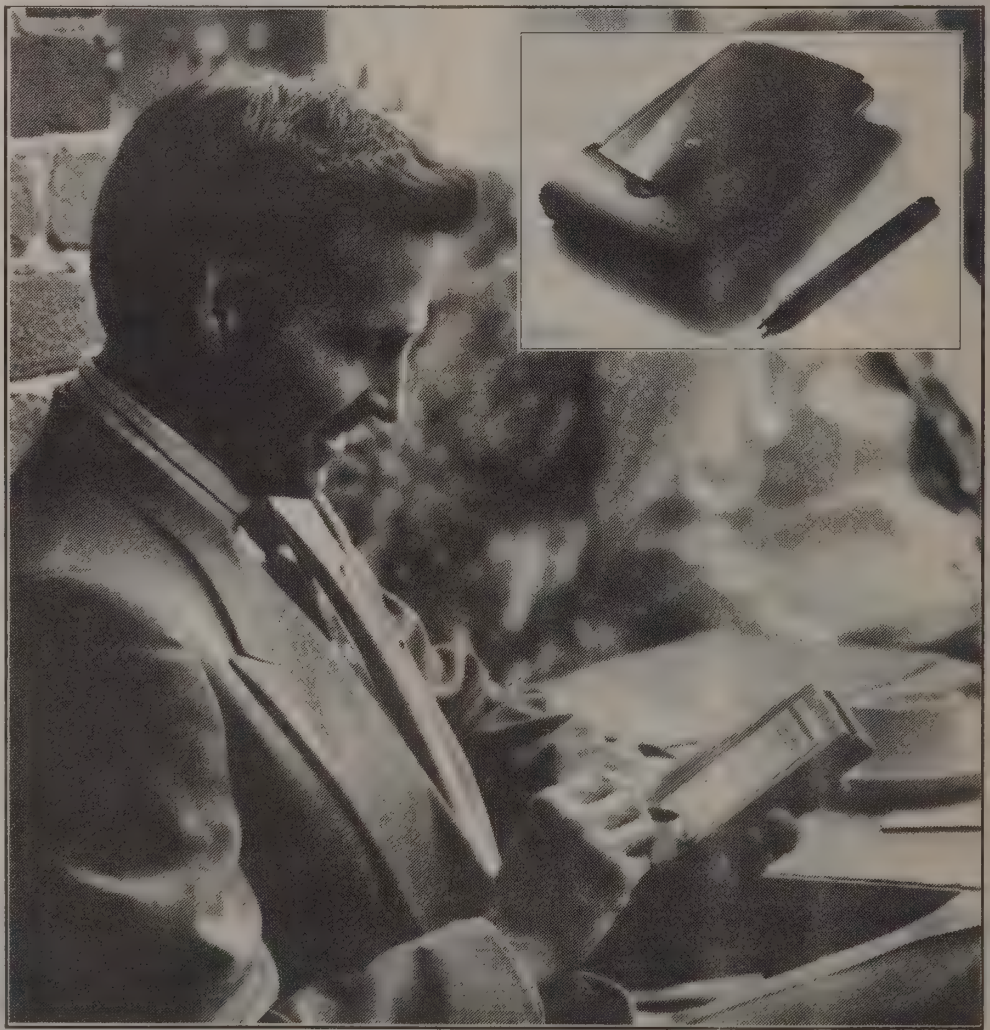
Palmtops go even further than notebook computers in terms of miniaturization. They are the Walkmen of personal computing. These machines are generally small enough to fit in a jacket pocket, sometimes small enough for a pants pocket. They aren't nearly as powerful as the notebook machines, but they offer the ultimate in portability and are even less obtrusive than a notebook computer. The batteries in many of the units can last for hundreds of hours of continuous use, and you can take them practically anywhere. And as power-saving technology and miniaturization technology improve, the power of the palmtop machines will rapidly increase.

In this month's column I will briefly describe several of the palmtops that are currently available or are planned for release soon. Over the next several months I will be covering these in depth, as well as discussing machines that have been announced or that will be available soon in the United States. (A number of palmtop computers have been released in Asia already, but are not yet available on a mass-market basis in the States.) I will also be covering pen-based computers at length. However, for now, the primary focus will be on machines available to the mass-market consumer.

STANDARDS

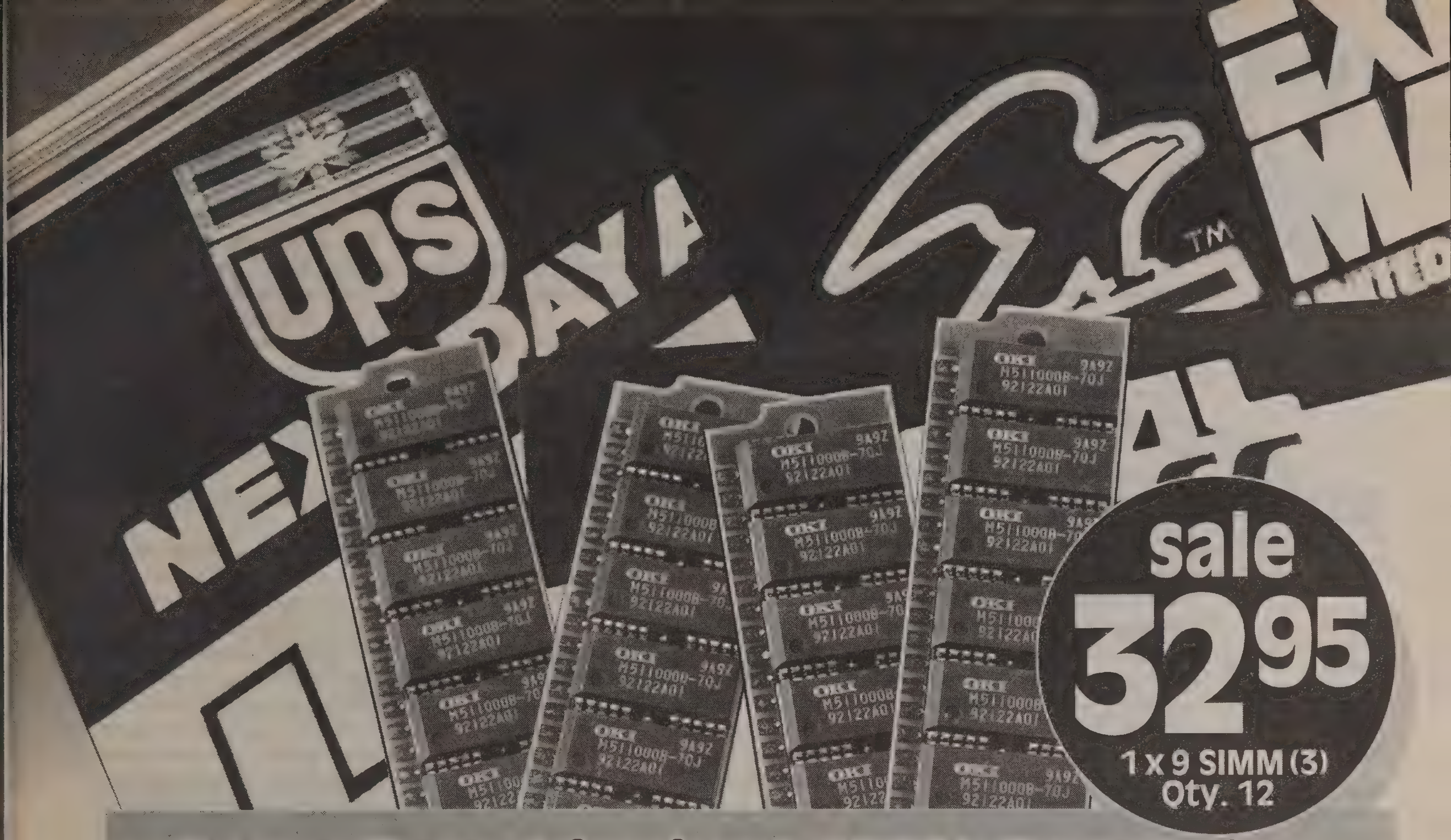
A brief note on emerging standards in the palmtop industry. The most important standard to keep in mind is called the PCMCIA standard. This is a hardware standard that allows any PCMCIA-compliant palmtop computer to talk to a PCMCIA-compliant memory card or expansion card. Currently, the most widely available PCMCIA cards are memory cards, which are indeed interchangeable among different palmtops which conform to the standard.

In addition, many palmtops are adopting



Apple's recently announced Newton combines handheld size with a low-power-consumption, high-speed RISC processor that gives it twice the computing power of a Mac IIfx.

Copyright © 1992 by Mitsu Hadeishi. All rights reserved.



sale 32.95
1 x 9 SIMM (3)
Qty. 12

Same Day shipping! 100% Guarantee

Now in stock...PCMCIA Credit Card Modules

SINCE 1976 ACP has delivered Memory Products featuring the latest in memory technology at the lowest prices. You can always count on us at ACP to have it first. This is why ACP has become one of the nation's leading distributors for Memory Products.

NEXT DAY delivery or use less expensive ground shipping at your request. Call us today...our toll-free lines are open all day and we are ready to service all your Memory Product needs!

QUALITY GUARANTEED. ACP sells only first grade fully tested Memory Products and we guarantee compatibility. Every part is 100% tested to insure your total satisfaction. Count on ACP for the best prices and the fastest delivery.

Save on Math Coprocessors

8087	
8087	**$ 29.00**
8087-2	**$ 89.00**
80287	
80287-10	**$ 39.00**
80287-20	**$ 77.00**
80287XL	**$ 88.00**
80387	
80387DX-16	**$ 89.00**
80387DX-20	**$ 99.00**
80387DX-25	**$ 99.00**
80387DX-33	**$ 99.00**
80387DX-40	**$129.00**
80387SL	**$159.00**
80387SX	
80387SX-20	**$ 79.00**
80387SX-25	**$ 79.00**
80387SX-33	**$ 99.00**
80487SX	
80487SX-20	**$469.00**

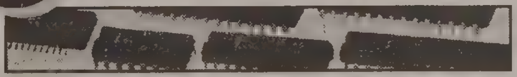
Save on SIMM Modules

		Qty. 1	Qty.12
	60ns	**$ 40.95**	**36.95**
1Mb x 9 (3)	70ns	**$ 39.95**	**34.95**
	80ns	**$ 37.95**	**32.95**
1Mb x 9 (9)	80ns	**$ 38.95**	**33.95**
	70ns	**$ 40.95**	**35.95**
4Mb x 9	60ns	**$149.00**	**133.00**
	70ns	**$128.00**	**117.00**
	80ns	**$125.00**	**114.00**
4Mb x 8	80ns	**$117.00**	**105.00**
1Mb x 8	80ns	**$ 34.95**	**31.95**
256K x 9	100ns	**$ 9.95**	**9.25**

Save on dRAM Chips

		Qty. 1	Qty. 25	Qty.100
256K x 1	60ns	**$ 1.99**	**1.89**	**1.59**
	70ns	**$ 1.79**	**1.59**	**1.39**
	80ns	**$ 1.59**	**1.49**	**1.25**
	100ns	**$ 1.49**	**1.35**	**1.19**
1Mb x 1	60ns	**$ 4.99**	**4.89**	**4.49**
	70ns	**$ 4.69**	**4.49**	**4.29**
	80ns	**$ 4.49**	**4.19**	**3.89**
	100ns	**$ 4.05**	**3.95**	**3.60**
256K x 4	70ns	**$ 5.19**	**4.99**	**4.19**
	80ns	**$ 4.79**	**4.59**	**3.99**
	100ns	**$ 4.49**	**4.39**	**3.75**
Video RAM (ZIP)				
256K x 4Z	80ns	**$11.95**	**10.99**	**9.95**
	100ns	**$11.49**	**10.49**	**9.50**

Save on CPU's/SRAM /EPROM



Static RAMS	Qty. 1
32K x 8	**$13.95**
2K x 8	**$ 3.25**
8K x 8	**$ 6.50**

CPU'S	
80386DX-33	**$119.00**
80386DX-40	**$129.00**
80486DX-50	**$749.00**
V-30-8	**$ 11.95**
V-20-10	**$ 10.95**

EPROMS	Qty. 1
2716-200ns	**$ 2.95**
2732-200ns	**$ 4.50**
2764-200ns	**$ 4.50**
27C64-200ns	**$ 3.95**
27128-200ns	**$ 4.75**
27C128-200ns	**$ 5.25**
27256-200ns	**$ 4.95**
27C256-150ns	**$ 6.25**
27512-200ns	**$ 6.50**
27C512-150ns	**$ 7.95**
27C101-150ns	**$11.95**

Save on PCMCIA RAM • FLASH CARDS

4MB
8MB
1MB
2MB

IBM CL57SX	2, 4 and 8Mb
Toshiba T1000/2000	1, 2, 4 and 8Mb
Toshiba T4400/6400	2, 4 and 8Mb
Toshiba T3300SL	2, 4 and 6Mb
Compaq Lte/Lite	1, 2, 4 and 8Mb
Flash Cards	256K to 20Mb
SRAM	to 2Mb

• CALL FOR PRICES •

Advanced Computer Products, Inc. 1-800-FONE-ACP

1310 E. Edinger Ave, Santa Ana, CA 92705 • FAX 714-558-8849 • Sales 714-558-8813

Call for current pricing. We offer Volume Discounts. All prices shown are cash prices. Non-cash orders add 3 %. All returns require RMA# and your original invoice. All product returned that is not defective is subject to a 15% restocking charge. Shipping/handling UPS Ground $6.00, 2nd-Day Air $9.00 and Next-Day Air $15.00 Established 1976. • 100% Guarantee, if you are not satisfied, return within 15 days and we will replace with similar item or issue credit less shipping •

DOS as their standard operating system. There are tradeoffs to using DOS rather than a special-purpose operating system: though running DOS allows the palmtop to run many third-party programs, DOS also eats up a lot of memory on these memory-shy palmtops (which typically have to use memory for both system RAM and simulated "hard disk" storage). Most palmtops, in addition, do not have a full 25x80 character screen, meaning that you either have to scroll around on the screen, or you have to get a special version of the program specifically designed for your palmtop screen size.

However, writing programs for DOS-compatible palmtops is generally a lot easier than on some of the others; you can simply write the program on your DOS machine, then download it into your palmtop, using whatever tools you find familiar (BASIC, C, C++, etc.)

FLASH RAM: LOOK OUT, SEAGATE

Flash RAM is already the standard for simulated hard disk storage in the palmtop domain. These cards are made up of EEPROMs (electrically erasable programmable read only memories). What this means is that you can change their contents with an electrical burst (thus the name "flash") and their contents remain even when the power is turned off. This makes them ideal for "simulated hard disk" storage in palmtop computers. Currently, the largest "Flash RAM" cards available for palmtops are in the 1–2MB range (and they cost around $400 for a 1MB card), but all this will soon change with the introduction of Intel's new 20MB Flash RAM card, announced this past April.

Intel's card is intended to retail for $700, only twice the retail price of existing 20MB 1.8" hard disk drives, and down considerably from the current price of Flash RAM cards, which are about ten times as expensive per megabyte as 1.8" hard disk drives. Initially, this will mean that palmtop computers will be able to store about ten to twenty times more information than they have been until now.

In addition, since semiconductor pricing is still falling at an exponential rate, the implications for the hard disk industry as a whole are vast: over the next several years as Flash RAM prices drop and reusability improves (the current Intel chips are supposed to be rewritable 100,000 times), the whole hard disk industry could become a thing of the past. If reusability improves and prices continue to drop past the level of hard disks, the market for hard disks of any size could simply evaporate. Flash RAM cards would not only be as cheap or cheaper than hard drives, they would be a lot faster and probably more reliable.

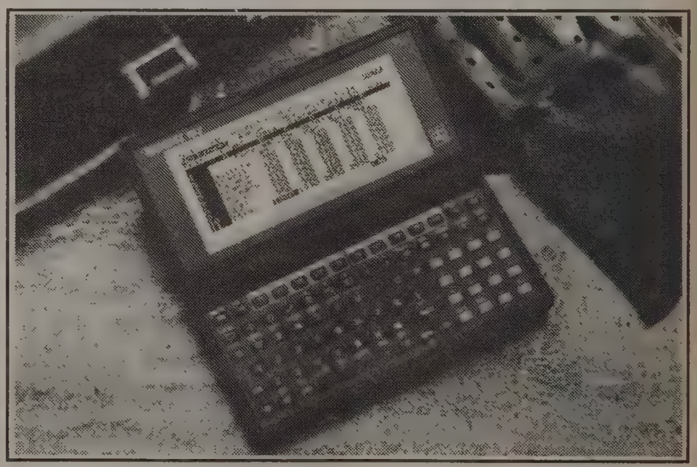
PALMTOPS IN A NUTSHELL

At the bottom of the palmtop market are the electronic organizers, the lowest end of these "portable personal information managers." Though the less capable of these units are not really powerful enough to be called palmtop computers (they are more appropriately termed "organizers"), the more advanced are quite capable and even expandable via card slots and communications ports. Thus they are generally considered to be competitive with their more expensive palmtop cousins. Most of these organizers include an address book, memo pad, scheduler, and world time/clock/alarm—what I call the "basic organizer functions."

The most popular line of electronic organizers is the Sharp series, currently holding the majority of the consumer market. These machines range from the Sharp organizers such as the $130 list ZQ-2400 (basic organizer functions, 64K of RAM, but no card slot), to a true palmtop computer line, the Sharp Wizard series (all of which have card slots), which includes the new $330 list OZ-7620 with 64K of RAM, the $400 list OZ-8200 with 128K of RAM and a larger screen, and the recently announced Sharp OZ-9600 with a very large 320x240 pixel touch screen, 256K of RAM, and most interestingly, pen input (price not yet available). Most of these machines have ports for connecting to a PC or a Macintosh and for communicating with each other. The card slot in these Wizard-class machines allows you to add such features as a spreadsheet, financial calculator, any of a number of travel guides and multilingual translators, extra memory, or even the BASIC programming language. These machines are sturdy and well designed. Sharp also has introduced a new palmtop DOS-based computer line, the PC-3000 series, which I will discuss in a future column in depth.

Casio offers electronic organizers such as the $80 SF-4300 with 4x16 character screen and 32K of RAM, and the $100 SF-5300 with a few more features and 64K of RAM. These machines are not expandable. The true palmtops offered by Casio start with the $300 list "Executive" B.O.S.S. SF-9500 with 64K of RAM to their new $450 SF-R10 with 256K of RAM, a large screen, and a built-in Lotus 1-2-3 compatible spreadsheet. Like the Sharp, Casio also offers a wide range of cards from a spreadsheet to a wine guide. Until the SF-R10, the Casio machines were considered to be a bit more clumsy to use and a little less well constructed than the Sharp machines. However, they tend to be priced a bit less than the Sharp machines, and thus can offer someone reasonable functionality for a bargain price.

The Psion Series 3 from Psion UK, a British company, is a very impressive new entry into the palmtop market. This unit retails for $549 and includes 256K RAM, two card slots (unfortunately not PCMCIA-compatible), an 8x40 character bit-mapped display, built-in serial port, a multitasking operating system, and several impressive built-in applications, including a Microsoft Word-compatible word processor (complete with multiple fonts, styles, and even style sheets), the usual organizer functions implemented in a very user-friendly manner, and even a built-in programming language. The unit uses a graphical user interface (driven from the keyboard) which is much more aesthetically pleasing than most palmtop computers offer. The only drawbacks to this unit are a slightly mushy keyboard (making it a little difficult to type quickly without errors) and the lack of PCMCIA compatibility. It is also not DOS-compatible, so you have to rely on Psion or third-party Psion developers for applications. However, Psion provides a number of expansion cards, including a $149 spreadsheet card, and the unit does include two card slots (most palmtops feature only one slot). More on this machine in next month's column.



The HP 95LX is an example of the current crop of DOS-compatible palmtops.

DOS-COMPATIBLE PALMTOPS

The Psion is a true palmtop computer; how-

Memorex Commuter Computer
Memorex Computer Supplies
1-800-222-1150

Motorola NewsStream™
Motorola's Paging and Telepoint Systems Group,
Contact: Ken Countess
305-475-5603

Poqet Computer
Fujitsu Computer Systems
408-982-9500

Psion Series 3
TPS Technologies
1-800-526-5950
(715)856-6833

Sharp Wizard and Sharp PC-3000 series palmtop computers
Sharp Corporation
1-800-321-8877

Super Discount Computer Store

FREE
GIFT CERTIFICATE—
LAS VEGAS
CALL FOR DETAILS!!

386 25MHz
- 105MB Hard Disk
- 5 1/4 & 3 1/2 Floppy
- SVGA Color Monitor
- 1MB RAM
- 101 Keyboard
- Mouse
- DOS/Windows 3.1

$1095

386 40MHz
- 125MB Hard Disk
- 5 1/4 & 3 1/2 Floppy
- SVGA Color Monitor
- 4MB RAM
- 101 Keyboard
- Mouse
- DOS/Windows 3.1
- 64K Cache

$1295

486 33MHz
- 125MB Hard Disk
- 5 1/4 & 3 1/2 Floppy
- SVGA Color Monitor
- 4MB RAM
- 101 Keyboard
- Mouse
- DOS/Windows 3.1
- 256K Cache

$1595

486 50MHz
- 125MB Hard Disk
- 5 1/4 & 3 1/2 Floppy
- SVGA Color Monitor
- 4MB RAM
- 101 Keyboard
- Mouse
- DOS/Windows 3.1
- 256K Cache

$1895

NOTEBOOKS

MITSUBA
386 SX-25
- 80MB HD
- 2MB RAM

$1599

DTK
386SX 20MHz
60HD/2 RAM

$1395

HEWLETT PACKARD

LASER HP III
W/Toner & Cable

HEWLETT PACKARD
Authorized Dealer

$1389

LASER HP IIP PLUS
W/Toner & Cable

HEWLETT PACKARD
Authorized Dealer

$739

LASER HP IIIP
W/Toner & Cable

HEWLETT PACKARD
Authorized Dealer

$969

DESK JET 500
W/Cable

HEWLETT PACKARD
Authorized Dealer

$359

ACCESSORIES & MEMORY UPGRADES

II,IID,III, IIIP, D, IIP

1MB/2MB	$99/150
3MB/4MB	199/249
IIP, IIP Lower Tray	139
HPII, III Toner	76
HPIIP, IIIP Toner	66
HP Postscript Cartridge	469
Pacific Page Postscript PE	369
Pacific Page XL Cartridge	749
HP LaserJet Fax	925

PACIFICO COMPUTERS

WEST L.A.
11540 Santa Monica Blvd.
VALLEY
13907 Ventura Blvd. #103
OPEN 10-6 MON. THRU SAT.

310/478-2522
818/788-4193

Prices subject to change without notice

ever, it does not run DOS programs unmodified (this is actually both a negative and a positive point for the Psion—it lets the Psion have a true multitasking operating system and a very nice user interface combined in a very compact unit). However, many of these higher-end palmtops run DOS, and this means you can download any of your favorite DOS programs to them and run them on the top of your hand.

Not all of these machines feature full-sized screens; a drawback to the full-sized screens, however, is that they add considerably to the computer's size (some call these sub-subnotebooks rather than palmtops.) Many popular DOS programs have been converted to accommodate palmtop screen sizes (such as HP's), but if the program has not been converted, you can still use most DOS applications by scrolling around over the full display.

A very popular new entry into this market is HP's DOS-compatible 95LX, which retails for $699. This sturdy little unit runs DOS 3.22 and includes 512K RAM standard, a 10x40 character screen, a Qwerty keyboard plus numeric keypad, a built-in three-wire RS-232 port, a single PCMCIA card slot, and built-in DOS, Lotus 1-2-3 Release 2.2, financial calculator, communications program, and the usual set of organizer functions. Negative points include a rather blocky, calculator-like appearance; also, the organizer functions are not as easy to use as those in the dedicated electronic organizer line. However, overall, an excellent, powerful unit.

Atari's $300 Portfolio has been on the market for some time. It has an 8x40 character display, 128K of RAM, one card slot, an interface port for connecting to a PC or a Mac, and a number of built-in organizer functions including a Lotus-compatible spreadsheet.

Sharp's PC-3000 will retail for approximately $1000, and has already been available in Asia for some time now. It includes a full 25x80 character screen, two PCMCIA 1.0 card slots, an external disk port, a megabyte of RAM, a megabyte of ROM, MS-DOS 3.3, a Lotus-compatible spreadsheet, and a variety of organizer functions. I will be covering this machine in detail in a future column.

Memorex has also announced its Commuter Computer, a similar machine for $600 retail with 640K RAM, 640K ROM, DR DOS 5.0, one PCMCIA 1.0 slot, an external disk port, and again a full 25x80 character screen. It also has the usual organizer programs and a built-in Lotus-compatible spreadsheet. This unit suffers from a low 8-hour battery life (with four AA batteries).

The Poqet PC, like the Portfolio, has been on the market for a while; it once sold for $1495 list but due to severe competition from the Sharp Wizard and other palmtops can now be found selling for as little as $780. This machine has 640K of RAM, a full 25x80 character screen, and two PCMCIA 1.0 card slots. The unit has a number of built-in organizer functions (somewhat less easy to use than those of its competitors), and offers no Lotus-level spreadsheet built in, so it is a bit behind the times in the software area. More on this unit in a future column as well.

NEWS FROM CES AND ELSEWHERE

Stac Electronics of Carlsbad, creators of the popular Stacker hard-disk compression software, and ACE Technologies of San Jose have

abacus
Computer Repairs
100% Women-Owned Business
4942 A Vineland Avenue
North Hollywood, CA 91601

We Can Fix It!

- On-site and carry-in, pick-up and delivery
- Macintosh, PC, NeXT, and Network certified technicians
- Service contracts
- Fast turnaround
- Call for technical support

We care about quality.
Call us if you do too.

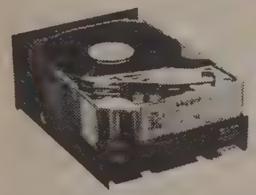
818.505.6031

WHOLESALE DRIVES

TOP QUALITY • DISCOUNT PRICES • FAST EXPERT SERVICE

640 MB ESDI KIT

Our customers nicknamed this drive "the tank" because of its reputation for long term reliability. A special purchase lets us sell these preformatted drives below normal cost. Each drive is factory refurbished and backed by CSC's fast turnaround 1 year warranty. These ESDI drives do not require drivers for any operating system. Free 24 Mb/sec DTC caching controller and cables included with each drive. Add $150 for 5 year extended warranty.



$1149

Maxtor 8760E
640MB 16ms
Complete Kit Price

THE HARD DRIVE BIBLE

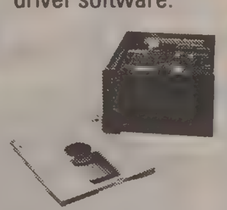
Finally, an easy to read complete reference book on Hard Drives. Included are installation instructions, jumper settings, drive parameter tables, and setup information on hundreds of hard, optical, and tape drives. Also included are compatibility information on controller cards and driver software. This book is essential for all dealers, system integrators and end users who install drives. Includes simple tips on increasing system performance through software. Formatting, performance test, and setup disks are included. Call today and receive our VHS video on how drives work, drive installation and troubleshooting included free.

$39.95

5th edition
Includes VHS video.
Free Shipping.

800 MB WORM $595!

CSC made a large purchase of factory refurbished optical drives to satisfy the increasing demand for high capacity at a low cost. These Maxtor RXT-800 drives are an ideal match for our FastCache controller. Removable optical media offers high speed and immense capacity (800MB per cartridge, unformatted). Call for low pricing on media and Optisys driver software.

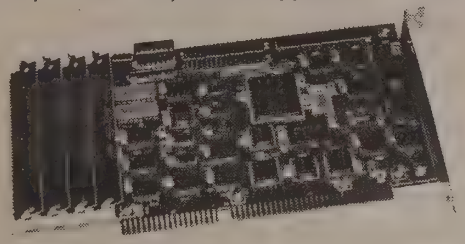


$595

Drive Only

NEW IDE CACHING CONTROLLER

Windows users rejoice! There's finally an inexpensive way to get more performance from your existing IDE drive. CSC's IDE FastCache 64 is your answer. Forget memory resident cache programs that steal valuable CPU time from applications. Free system memory and break the disk bottleneck with hardware disk cache. This card supports two IDE drives and up to 4 floppies. No drivers are required for any MS DOS 5.0 applications. Cache expands to 64MB. Five year warranty. Now supports 2.88MB floppies!



Wholesale Pricing
IDE FastCache
(1MB).....

$195!

Call for quantity discounts

"FASTEST SCSI CONTROLLER KNOWN TO MAN"

This is an actual quote from a FastCache customer. You too will be amazed with the expandability and performance boost this controller provides. Up to 7 SCSI and 4 floppy drives can be connected to a single card. New SCSI peripherals like CD-ROM and fast SCSI tape drives can be added without additional controllers. Up to 64MB of cache RAM is supported. This is also the first SCSI card to support the new IBM standard 2.88MB high performance floppy drives. This card will peacefully coexist with IDE drives for simple system upgrades. For a limited time, each card purchased at $395 will include a free 2.88MB floppy drive or a 4MB cache upgrade. Just tell us which you'd like.

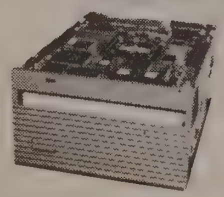
Wholesale Pricing
SCSI FastCache
(1MB).....$395!

Free 2.88MB floppy drive or 4MB Cache RAM

Call for quantity discounts

MAXTOR TAHITI ERASABLE OPTICAL

The Maxtor Tahiti offers the fastest access time of any drive in its class. Performance is comparable to a hard drive, and ISO (650MB) or Maxtor (1GB) cartridges can be used. These popular drives normally retail for over $3000! CSC has made a special purchase of refurbished units and is offering a limited quantity below factory cost. Call for discount kit pricing with our FastCache SCSI controller.



$1295

1000MB Drive Only

TOP CASH PAID FOR ALL TYPES OF DRIVES	THOUSANDS OF DRIVES IN STOCK	CALL FOR QUANTITY DISCOUNTS

CORPORATE SYSTEMS CENTER
730 North Pastoria Ave. Sunnyvale, CA 94086

(408) 737-7312
FAX (408) 737-1017

AFFORDABLE QUALITY CD-ROM DRIVES

Now's your chance to purchase a feature loaded CD-ROM drive at a rock bottom price. These refurbished Toshiba drives are the best CD-ROM buy on the market. The XM3201B features a fast SCSI interface and front panel audio output. A great choice for multimedia applications.

$249

CLOSEOUT SPECIALS

When CSC cleans house, our customers win. Prices valid only while supplies last, so call soon to avoid disappointment! 1 year warranty.

Model	Price
New Teac 2.88MB floppies	$115
New Seagate ST41600N (1.3GB 12ms SCSI)	$2695
New Maxtor 4170S (154MB 14.5ms)	$449
New Adaptec EISA SCSI 1740	$295
New DTC 6282-24 ISA ESDI	$149
New Western Digital 1007 w/BIOS	$ 89
New Archive 2150S with 250MB tape	$449

announced shipments of a PCMCIA-compliant palmtop memory card called the DoubleCard, which employs Stacker-like compression technology to double the amount of space available on a RAM card. Suggested retail prices for the cards are $319 for 1MB, $499 for 2MB, $799 for 3MB, and $999 for 4MB. This compares with, for example, $600 for the HP 1MB PCMCIA RAM card, or the $780 2MB Sparcom PCMCIA memory card.

As discussed above, Intel also recently announced its new $700 20MB Flash RAM cards. A particularly interesting aspect of the card is that its 100,000 read/write cycle limit is ten times the read/write cycle limit guaranteed by other flash memory manufacturers. According to Dick Pashley, general manager of Intel's Memory Components Division, this product is dropping the price of Flash RAM to a level that was not predicted by most experts for at least a few more years.

Meanwhile, Microsoft announced its new Flash File System which will support both the new Intel 20MB card, and those of many other manufacturers. This is a file storage format and device driver intended to allow palmtop computers with Flash RAM cards installed to use them as simulated (very fast) hard disks. The format is not DOS-specific, although Microsoft provides a Flash File System device driver for DOS-based palmtops that allows developers to write to these devices just as though they were ordinary hard disks. Because the format itself is not DOS-specific, however, this standard will allow machines that use different operating systems to read and write to a uniform Flash RAM file format, allowing disparate machines to exchange data simply by exchanging PCMCIA memory cards.

Apple launched its new Personal Digital Assistants, or PDA line of palmtop computers, with the announcement of the Newton palmtop PC. The Newton combines handheld size with a low-power-consumption, high-speed RISC processor that gives it twice the computing power of a Mac IIfx. Apple has not yet announced pricing for the machine, which was shown in prototype at this June's Consumer Electronics Show in Chicago.

The Newton combines an advanced multitasking operating system called NewtOS with sophisticated handwriting recognition technology (the Newton actually employs more than one recognition algorithm simultaneously, to get the best results), and an advanced user interface manager called the Intelligent Assistant, which greatly simplifies operation of the machine. The Newton includes a single proprietary 32-bit slot, which is also downward compatible with PCMCIA 2.0 cards (meaning you can use both PCMCIA 2.0 cards and 32-bit high-speed Apple cards). Future columns will give an in-depth look at the Newton's technology and features.

Also announced at CES was Motorola's support of the Apple Newton with a service that would provide one-way data transfer to devices such as the Apple Newton. The receiver would allow users to receive information such as email, news, weather, sports, and possibly even traffic and airline schedules, wherever they happen to be. This information could be sent to the portable computers via the existing national and local paging common carrier data services.

Next month: a review of the Psion Series 3, an overview of the world of pen-based computers, more about the Apple Newton, and other palmtop and pen news and trivia. ■

CNE
AT
NIGHT
(AND SATURDAYS TOO!)

Evernet Education Services is now offering Novell ® Certified Netware Engineer (CNE) courses in the evening and on Saturdays too!

Call us today for a free class schedule and more information on how you can get your CNE.

Evernet Education Services is a division of
Evernet Systems, Inc.
the national network systems integrator.

CALL TODAY 1-800-447-3658

EVERNET
EDUCATION SERVICES
Los Angeles • San Francisco • Sacramento •
Houston • Chicago

BINOMIAL SYSTEMS, INC.

BINOMIAL SYSTEMS

957 Fairway Drive, Walnut, CA 91789
Tel: (714) 595-8293 • Fax: (714) 598-4609

Store Hours:
Mon-Fri: 10AM-6PM
Sat: 10AM-4PM

SBT CORPORATION Accounting Software Packages
SBT Authorized Dealer

ARTISOFT LANtastic™

Novell Certified NetWare Engineer™

NetWare Lite™ NANAO STEALTH ViewSonic®

MISCELLANEOUS PRODUCTS

486-50 Mhz Motherboard w/256K	1,085.00	Nanao T560i 17" 1280x1024 Non-Interlaced	1,895.00
486-33 Mhz Motherboard w/256K	635.00	NEC 4FG 15" 1024x768 Non-Interlaced	795.00
386-33 Mhz Motherboard w/64K	295.00	NEC 5FG 17" 1280x1024 Non-Interlaced	1,524.00
386SX-25 Mhz Motherboard	189.00	Diamond Stealth Super VGA Card	275.00
Mylex DCE376 EISA SCSI Cache w/512K	725.00	Orchid Farenheit Super VGA Card	289.00
Adaptec 1522 SCSI Host Adapter w/Drivers	149.00	Diamond Speedstar Hi-Color VGA Card	175.00
Adaptec 1542 SCSI Host Adapter w/Drivers	275.00	Tseng Lab Super VGA Card w/1MB RAM	92.00
Adaptec 1740 EISA 32-bit SCSI Host Adapter	479.00	Trident Super VGA Card w/1MB RAM	75.00
Nanao 9080i 16" 1280x1024 Non-Interlaced	1,095.00	Colorado DJ-20 250MB Tape Backup	275.00

NETWORK PRODUCTS

Arcnet Cards:	
8-bit Arcnet Card	55.00
16-bit Arcnet Card	75.00
Ethernet Cards:	
8-bit Ethernet Card	89.00
16-bit Ethernet Card	118.00
16-bit Bus-Master Ethernet Card	179.00
3Com 16-bit Ethernet Card	195.00
32-bit EISA Ethernet Card	425.00
Pocket Ethernet Adapter	244.00
10 Base-T Cards:	
8-bit 10 Base-T Ethernet Card	119.00
16-bit 10 Base-T Ethernet Card	139.00
16-bit 10 Base-T Ethernet Bus-Master	189.00
3Com 16-bit 10 Base-T Ethernet Card	215.00
Pocket 10 Base-T Ethernet Adapter	264.00
Network Hubs:	
4 port 10 Base-T Internal Hub	350.00
8 port 10 Base-T External Hub	450.00
12 port 10 Base-T External Hub	525.00
4 port Arcnet Passive Hub	24.00
8 port Arcnet Active Hub	125.00
Network Softwares:	
Alcom LanFax Gateway (8 users)	795.00
Alcom LanFax Gateway (15 users)	1,495.00
Artisoft Lantastic A/I v4.1	75.00
Artisoft Lantastic for NetWare	395.00
daVinci E-mail for DOS w/MHS (10 users)	395.00
Fifth Generation Direct Acces for Network	445.00
ICC Remote Lan Node Link	489.00
Intel NetSatisFaxtion (unlimited users)	720.00
Lotus cc:Mail (25 users)	CALL!
Novell NetWare Lite w/DRDOS 6.0	75.00
Symantec PC Anywhere 4.5 LAN	375.00
Miscellaneous:	
2 port Ethernet Repeaters	CALL!
4 port Ethernet Repeaters	CALL!
25 feet Coaxial Cable RG58A	10.00
BNC Terminator	1.75

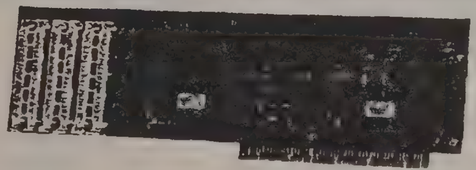
Call for customized network cables!!!

EISA 486 MOTHERBOARD

50 Mhz w/CPU - $1595
33 Mhz w/CPU - $1295

Full Size Board w/Intel® Chipsets
Supports 486 Burst Mode Operation
64 MB RAM on Board Expandability
256K Cache Installed (Exp. to 512K)
Fast CPU Reset & Fast Gate A20 Reset
Eight 32-bit EISA Slots Support Master Mode

IDE CACHE CONTROLLER



ISA BUS - $245
EISA BUS - $395

0.4ms Average Access Time
Greater Than 528 MB Support for DOS
5 MB/Sec Max Data Transfer Rate
Max Four IDE Drive Support
Hot Fix Sectoring for Fault Tolerance
1:1 Interleave

NOVELL PRODUCTS

NetWare 2.2 5 Users	515.00
NetWare 2.2 10 Users	1,095.00
NetWare 2.2 50 Users	1,995.00
NetWare 3.11 5 Users	CALL!
NetWare 3.11 10 Users	1,394.00
NetWare 3.11 20 Users	1,950.00

NETWORK PLUS⁺

1 Server & 4 Workstations

ISA 386SX/25 Mhz Server

- 4 MB Memory Expandable to 64 MB
- 85 Mb IDE Hard Drive w/ controller
- 1.2 MB or 1.44 MB Teac Floppy Disk
- 8 bit ARCNET Card
- AT I/O Card (2S/1P/1G)
- Fujitsu 101 Keyboard
- Medium Vertical Tower Case
- 230-Watt Power Supply

Four ISA 286/12 Mhz Workstations

- 1 MB RAM
- 8 bit ARCNET Card
- Diskless Boot PROMS
- AT I/O Card (2S/1P/1G)
- Fujitsu 101 Keyboard
- Desktop Case
- 200 Watt Power Supply

$2,350.00[1]

Upgrade Options: (Add)

Server to ISA 386/33 Mhz	115.00
Server to ISA 386/40 Mhz	135.00
Server to ISA 486/33 Mhz	485.00
Server to ISA 486/50 Mhz	885.00
Server to EISA 486/33 Mhz[2]	1,175.00
Server to EISA 486/50 Mhz[2]	1,575.00
Workstation to ISA 386SX/25	100.00
Workstation to ISA 386/33 Mhz	235.00
Workstation to ISA 386/40 Mhz	255.00
Workstation to ISA 486/33 Mhz	605.00
Workstation to ISA 486/50 Mhz	1,005.00

1. **Network Operating System is not included!**
2. **Full-Tower Case w/250 Watts Power Supply.**

* **For Other Options Please Call.....**

DO IT YOURSELF

Complete with 2 Copies of Novell Netware Lite[1], 25 Feet Coaxial Cable and 2 network cards:

8 bit Arcnet Card	265.00
16 bit Arcnet Card	305.00
8 bit Ethernet Card	335.00
16 bit Ethernet Card	395.00

[1] Replace Novell NetWare Lite with Artisoft Lantastic/AI add $20.00 more.

Additional 25 feet of coaxial cable add $10.00.

SYSTEMS SPECIAL

486/50Mhz EISA System	1,810.00
486/33Mhz EISA System	1,510.00
486/50 Mhz System	1,275.00
486/33Mhz System	925.00
386/33Mhz System	555.00
386SX/25Mhz System	425.00
85MB IDE Hard Disk Add	299.00
120MB IDE Hard Disk Add	375.00
200MB IDE Hard Disk Add	605.00

All systems include 1MB of RAM, 1.2MB or 1.44MB floppy drive, 2 serial, 1 parallel, 1 game port, IDE controller card, 1 Fujitsu 101-keyboard, and a case w/power supply. DOS 5.0 included.

SPRING SPECIAL

EPSON ES-300C

Color Scanner

w/DOS Interface Kit

$1,275.00

Includes a bi-directional scanner interface card with a parallel cable and Software.

* All prices subject to change without prior notice.

Beyond Hardware Sharing

Computing Across Time And Space With Wide-Area Networks

BY YACCO

RESOURCES:

Timbuktu, $195
(LAN version)
Timbuktu/Remote, $195 (modem version)
Farallon Computing, Inc.
2000 Powell St., Ste. 600
Emeryville, CA 94608
(510)849-2331

TransTalk half router, $899 each
Intertalk local router, $599
EtherWay router/gateway (TCP/IP, DECnet), $1599
SerialWay three-port asynchronous RS-232 server, $599
LocalTalk $999 Ethernet
International Transware, Inc.
1503 Grant Rd., Ste. 155
Mountain View, CA 94040
800-999-6387 (NETS)
(415)903-2300

When local networking started just a few years ago, the principal reason for installing one was to share resources. High-quality printers and large hard disks were quite expensive, and it made sense to connect them to as many users as possible. But as those economics have changed, so have local-area networks.

Today, it's growing more likely that workstations are connected to share information than to share hardware, and the ability to collaborate on work in progress is emerging as the most potent way networked information is shared. Electronic mail, WordPerfect Office, and ON Technology's Meeting Maker are representative of the products that are the focus of this change.

However, groupware by itself can't help if your work force, and their work, is spread across the nation—or even across town. That type of application is beyond the scope of LANs. Nevertheless, companies are working with applications, not only across the country, but around the world. They are doing it with wide-area networks (WANs). WANs provide the ability to connect two distant networks as though they were in the same location.

The WAN is more than just a network distributed across a large geographic region. Locally, it employs conventional LAN media and protocols such as Ethernet or LocalTalk, and these local segments can be connected directly. But it isn't feasible for most companies to string coaxial cable from coast to coast, or twisted pairs from New York to Paris. So, WANs are typically connected through an intermediary service and special hardware devices.

LOCAL AREA NETWORKS

> ***WANs*** *provide the ability to connect two distant networks as though they were in the same location.*

Copyright© 1992 by Wayne A. Yacco. All rights reserved. An editor, writer, and consultant specializing in microcomputers and their business applications, Wayne Yacco writes articles, columns, and reviews for many trade and business publications. He can be reached at PO Box 269, Burbank, CA 91503.

WAN OPTIONS

Common carriers offer several classes of service that can provide this channel, depending on the capacity and speed required by the application. One class, called Digital Data Service (DDS), uses either switched or dedicated 56Kbit lines. The switched (direct-dial) version of DDS, for instance, is called switched-56 service. It employs 56Kbit, data-only, conditioned, digital, synchronous, dial-up lines.

Integrated Services Digital Network (ISDN) is a digital service with 64Kbit capacity, and multiple lines can be combined for 128Kbit or higher speeds. It also allows simultaneous data and voice.

T1 service is simply a bundle of twenty-three DDS lines that provide data rates up to 1.5Mbits/second. Even faster applications can be supported by new services like the 51Mbps Synchronous Optical Network (SONET), and the 1.54Mbps to 155Mbps Switched Multimegabit Digital Service (SMDS). SMDS supports Ethernet, Token Ring, and Fiber Distributed Data Interface (FDDI).

Of course, a WAN can also be based on common analog phone lines and a modem, but for any WAN a special type of router is required to bridge segments. As with any router, these devices isolate traffic, and extend physical limitations. However, they differ from conventional bridges and routers, because they must work in pairs—one at either end of a line. Hence the name "half router."

The half router connects to a LAN, or to a gateway connected to a LAN, on one side, and to one or more pieces of facilitating equipment on the other. For DDS lines, the router is connected to a Digital Service Unit/Channel Signaling Unit (DSU/CSU). For ISDN lines, the router is connected to an NT1 (network termination device) and a terminal adapter. T1 lines require the addition of a multiplexor. These other devices are, in turn, connected to the channel.

WANs aren't always simple to install, because the required phone services aren't widely available yet. ISDN will eventually be provided everywhere, even as a residential service, but it's still going to take a while longer for all the local loops to be converted to digital. This issue alone makes implementing a WAN for a dedicated internal application easier than providing it to clients as a service.

CURRENT APPLICATIONS

Nevertheless, some work-group applications have such a pressing need for connectivity that WANs are beginning to appear as service bureau-client connections. Desktop publishing is one of these application areas. Several times in past columns, I've talked about its need to evolve support for the work-group metaphors of traditional publishing.

One New York desktop-publishing service bureau is, in fact, pioneering WAN desktop-publishing services for its customers. Business Link offers a 56Kbit WAN service, called the Desktop Imaging Network, to clients as a complete package. The company provides and installs all of the required software and hardware, including Farallon's Timbuktu/Remote and a TransTalk half router from International Transware that works with just about any type of WAN, digital or analog. In certain areas where 56Kbit service is rather expensive (such as those served by Atlantic Bell where rates for 56Kbit service are as much as four or five times higher than the nation's lowest), Business Link is addressing the problem by installing local "Pumping Stations"

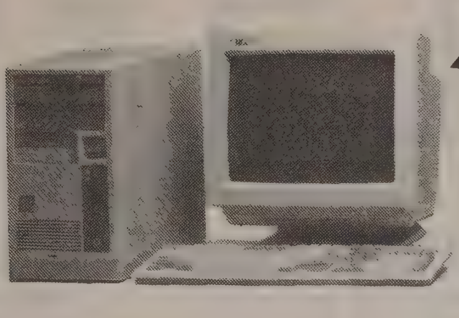
GET A DYNAMITE DEAL!

30-Day Money Back Guarantee!

Lifetime Tech Support!

32-Bit Local Bus

486DX-33	$1525
486DX/2-50	$1649
486DX-50	$1799

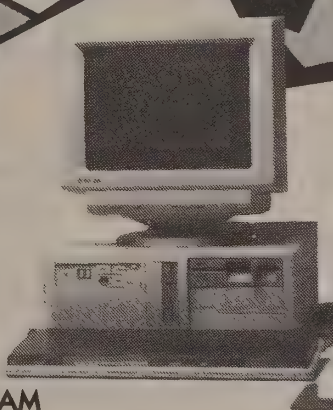


- ★ 64K Fast Cache
- ★ 130MB 15ms Hard Drive
- ★ 32-Bit SVGA Card, 32, 768 Colors
- ★ 2 Serial, 1 Parallel, 1 Game
- ★ 4MB RAM
- ★ 1.2MB & 1.44MB Floppy
- ★ 1024 x 768 SVGA Monitor
- ★ 101 Enhanced Keyboard

We'll Beat Any Price!

1 Year Warranty!

486DX-50	$1725
486DX/2-50	$1599
486DX-33	$1449
386DX-40	$1149
386DX-33	$1129



- ★ 64K Fast Cache
- ★ 130MB 15ms Hard Drive
- ★ 1024 x 768 SVGA Card w/1MB
- ★ 2 Serial, 1 Parallel, 1 Game
- ★ 4MB RAM
- ★ 1.2MB & 1.44MB Floppy
- ★ 1024 x 768 SVGA Monitor
- ★ 101 Enhanced Keyboard

386SX-25	$699
286-20	$669

- ★ 1MB RAM
- ★ 1.2MB or 1.44MB Floppy
- ★ 2 Serial, 1 Parallel, 1 Game
- ★ 42MB 28ms Hard Drive
- ★ 640 x 480 VGA Monitor
- ★ 101 Enhanced Keyboard

System Dynamic Group, Inc.

Tel: (818) 333-6467 ★ Fax: (818) 330-1592 Mon.–Fri. 9:00–5:00pm
15356-B East Valley Blvd., Industry, CA 91746 Sat. 10:00–4:00pm

MasterCard VISA

INTEL ACCEL QUANTUM AMD AMAZING CONNER NEC CTX CITIZEN STAR TEAC OKIDATA TRIDENT TI TATUNG CHINON MAXTOR COLORADO MICROSOFT

HIGHEST QUALITY COMPUTERS AT LOWEST PRICES IN TOWN

BELIEVE IT!

2 YEARS WARRANTY

INTERMEDIATE
386-25 SX $915
386-25 DX $945
386-33 64k $995
386-40 64k $1000
486-33 256k $1360
- 1024x768 SVGA Color Monitor
- 1024x768 SVGA Graphic Card
- 85MB IDE Hard Drive
- 2 MB System RAM
- 1.2 or 1.44 MB Floppy
- 101 Keyboard
- 2Ser,1Per,1Game
- Mouse
- Preloaded Software
- Desktop / Mini Tower
AS LOW AS $25 PER MONTH

ADVANCED
386-25 DX $1120
386-33 64K $1175
386-40 64k $1180
486-33 256K $1540
486-50 256k $1935
- 1024x768 SVGA Color Monitor
- 1024x768 SVGA Graphic Card
- 125MB IDE Hard Drive
- 4MB System RAM
- 1.2 & 1.44 MB Floppy
- 101 Keyboard
- 2Ser,1Per,1Game
- Mouse
- Preloaded Software
- Desktop / Mini Tower
AS LOW AS $35 PER MONTH

PROFESSIONAL
386-33 64K $1430
386-40 64K $1435
486-33 256k $1810
486-50 256k $2180
486-33 EISA $2465
- NON-INTERLACED SVGA Monitor
- SVGA Graphic Card W/1MB
- 200MB IDE Hard Drive
- 4 MB System RAM
- 1.2 & 1.44 MB Floppy
- 101 Keyboard
- 2Ser,1Per,1Game
- Mouse
- Preloaded Software
- Desktop / Mini Tower
AS LOW AS $45 PER MONTH

NOTE BOOK OKIDATA

SHARP SCREEN 386-25SXL
- 85 MB IDE Hard Drive
- 3.5" 1.44 MB FLOPPY DRIVE
- 2 MB SYSTEM MEMORY
- 9.5" SHARP SCREEN VGA
- 64 SHADES GRAY SCALE
- 2 BATTERIES, 6-8 HOURS LIFE
- WINDOWS 3.1 & DOS 5.0
- Carring Bag & A/C Adapter
ONLY $1745 $45 MONTH

OL400 4PPM 17 FONTS $599
OL800 8PPM 26 FONTS $945

LEASING & FINANCING
AMERICAN EXPRESS VISA MASTERCARD DISCOVER

20/20 Technologies
(213) 852-1282
(818) 548-5119
HOURS 10-6 M-SAT

386? 486? NETWORKS? CADD?

PERFECT FIT.
HEWLETT PACKARD
NOVELL.
AUTOCAD®
ISI CAD
DESIGNJET PLOTTER
H.P.'s NEWEST—NOW IN-HOUSE FOR DEMO!

386SX NOTEBOOK
- 386SX PROCESSOR
- 1 MB RAM INSTALLED
- 40 MB H. DRIVE
- VGA DISPLAY
- BATTERY & CASE
- DOS 5.0
- WHILE THEY LAST
$1180
Lease and Financing Available!
Trademarks belong to their respective owners.

LOGICACHE NOW DOES PLOTTING!

LCi LOGICACHE COMPUTERS, INC.
IBM COMPATIBLE MANUFACTURER/DISTRIBUTOR
SALES & SERVICE — CADD CONSULTING
HOURS: M-F: 9 am to 6 pm • Sat & Sun: By Appt. Only
TEL: (714) 855-1211
FAX: (714) 855-3892
22691 Lambert St.,
Suite 505
El Toro, CA 92630

that absorb the cost of a switched-service connection for its customers.

There are already over thirty clients using the Business Link system, and some of the applications are quite sophisticated. Well-known New York designer Javier Romero, for instance, is planning to connect his office in Madrid in time for the World's Fair in Barcelona this year. The work he's currently doing in Spain for clients like Coca-Cola (on its Olympic sponsorship) requires frequent intercontinental flights. With the WAN, his company, Romero Design, Inc., "can have two offices around the world from each other, and it's like you're in the same building," he says.

Romero's eight-Macintosh New York AppleTalk network is currently connected to the service bureau via AT&T's switched 56Kbit ACCUNET service, and uses it to send files for comps, films, and other separation work. Business Link processes Romero's PostScript files, and delivers output from one of its image setters, or a Dupont 4Cast dye-sublimation printer, by 9:30 the next morning. When Madrid joins the network, Romero will also be able to approve proofs online without leaving his desk.

> ***Today,*** *it's growing more likely that workstations are connected to share information than to share hardware.*

By mid-July, another Desktop Imaging Network client, Wilcox & Associates, will be using the service to network its offices in San Francisco and New York. "The local project managers will be able to review creative concepts, and present them to clients on a real-time basis," claims President Bob Wilcox. Wilcox creates sales-promotion and direct-mail programs—and already uses the WAN to provide related products that include di-

GUARANTEED LOWEST PRICE

Limited Quantity
While Supply Last

8 Years of Experience

ATC486-33

INCLUDES

- ☑ 4MB RAM With 64K Cache
- ☑ 1.2MB 5.25" Floppy Drive
- ☑ 101 Enhanced Keyboard
- ☑ VGA Card & Gray Scale VGA Monitor
- ☑ 120MB Hard Drive
- ☑ 1.44MB 3.5" Floppy Drive
- ☑ 2 Serial/ 1 Parallel/ 1 Game
- ☑ Mini-Tower Case

$1199!

With 256K
Cache
$1249

ATC386-40

$949

Same as above

ATC386sx-25

$849

Same as above

	With System	Regular Price
CROSSTALK 4 Windows..	$49	$195
Adobe **TYPEMANGER**.....	$29	$99

PARTS

Hard Drive	
Maxtor 130MB IDE H.D.......	$325
Connor 120MB IDE H.D......	$325

VGA ADAPTER	
Trident 1MB SVGA Card......	$59
VGA 256K Card.....................	$32

MONITOR	
Shamrock SVGA NON-Interlaced .28 Monitor............................	$279
Beyond SVGA .28(Int).........	$239
VGA Monitor(.42).................	$209

CASE	
Full Tower Case w/265W......	$89
Mid-Tower Case w/230W.....	$75
Desk-Top Case w/200W........	$59

Mother Board	
80486-33/64K Cache(0k)...	$135
80486-33/256K Cache(0k)..	$185
80386-40/64K Cache(0k)..	$119

CPU

Call for latest prices!

1 YEAR PART &
2 YEARS LABOR
WARRANTY

Our Promises To YOU!!

- ☑ No hidden cost .
- ☑ All manuals and documantations provided.
- ☑ Life time technical support by the knowledgable staff.

ATC *Computer*

Los Angeles Branch
** 6767 W. Sunset Blvd. #23 **
** Los Angeles, CA 90028 **
**** (213)962-8610 ****

Orange Country Branch
** 2440 N. Glassell St. Unit M **
** Orange, CA 92665 **
****(714) 974-9868****

GUARANTEED LOWEST PRICE

TOP QUALITY BRAND NAMES:

INTEL•CONNER•MAXTOR•TEAC & MORE

FCC B APPROVED

SUPER CAD STATION

- 80486-33MHz w/Intel CPU
- Built-In Math Co-Processor
- 256K Cache Memory
- 8MB Of RAM Expandable To 32
- 213MB HDD (15ms)
- 1.2 & 1.44MB FDDs (TEAC)
- 17" Viewsonic Monitor (7)
- Orchid Fahrenheit Video Card w/1MB Memory 1280x1024 Resolution
- Full Tower Case w/2 Fans & Air Filter
- 2 Serial/ Parallel/ Game Ports
- Internal Clock Calendar
- 101 Enhanced Keyboard
- DOS 5.0 w/Manuals

$2995

FREE FREE

MICROSOFT WINDOWS 3.1 & MOUSE

(With purchase of any 486 system)

486-33 LOCAL BUS

- 80486-33MHz w/Intel CPU
- Built-In Math Co-Processor
- 256K Cache Memory
- 8MB Of RAM Expandable To 32
- 213MB HDD (15ms)
- 1.2 & 1.44MB FDDs (TEAC)
- Viewsonic 6 Non-Interlaced Monitor
- S-3 Video Card w/1MB Memory 32-Bit SVGA
- Full Tower Case w/2 Fans & Air Filter
- 2 Serial/ Parallel/ Game Ports
- Internal Clock Calendar
- 101 Enhanced Keyboard
- DOS 5.0 w/Manuals

$2249

486-33MHz

- 80486-33MHz w/Intel CPU
- Built-In Math Co-Processor
- 256K Cache Memory
- 4MB Of RAM Expandable To 32
- 130MB HDD IDE (15ms)
- 1.2 & 1.44MB FDDs (TEAC)
- 1024x768 Non-Interlaced Monitor (.28mm D.P.)
- SVGA Trident w/1MB Memory
- Full Tower Case w/2 Fans & Air Filter
- 2 Serial/ Parallel/ Game Ports
- Internal Clock Calendar
- 101 Enhanced Keyboard
- DOS 5.0 w/Manuals

$1690

386-33/40MHz

- 80386-33/40MHz
- 64K Cache Memory
- Math Co-Processor Socket
- 4MB Of RAM Expandable To 32
- 130MB HDD IDE (15ms)
- 1.2 & 1.44MB FDDs (TEAC)
- 1024x768 Non-Interlaced Monitor (.28mm D.P.)
- SVGA Trident w/1MB Memory
- Mid Tower Case w/230W Power Supply
- 2 Serial/ Parallel/ Game Ports
- Internal Clock Calendar
- 101 Enhanced Keyboard
- DOS 5.0 w/Manuals

$1350/$1390

386SX-25MHz

- 80386SX-25MHz w/Built-In CPU
- 2MB Of RAM Expandable To 16
- 80MB HDD (IDE)
- 1.2 & 1.44MB FDDs (TEAC)
- 1024x768 Non-Interlaced Monitor
- SVGA Trident w/1MB Memory
- Mini Tower/Desk Top Case
- 2 Serial/ Parallel/ Game Ports
- Internal Clock Calendar
- 101 Enhanced Keyboard
- DOS 5.0 w/Manuals

$1175

NOVELL NETWORK SPECIAL

1 FILE SERVER

386-33MHz

- 80386DX-33MHz w/64K Cache
- 4MB Of RAM Expandable To 32
- Math Co-Processor Socket
- 213MB HDD (IDE)
- 1.2 & 1.44MB FDDs (TEAC)
- Full Tower Case w/250W, w/2 Fans and Air Filter
- 14" Monochrome Monitor
- 101 Enhanced Keyboard

4 WORKSTATIONS

- 386SX-16MHz
- 1MB Of RAM
- Mini/Desk Top Case
- 14" Monochrome Monitor
- 1.2 FDD (TEAC)

INCLUDING:

NOVELL NETWARE V.3.11 (5 USERS)
5 16-BIT ETHERNET INTERFACE CARDS

ONLY $5559

Maintenance Agreement Available

NETWORK PRODUCTS

8 Bit Ethernet Card	$95
16-Bit Ethernet Card	$120
16-Bit Ethernet 10 Base-T Card	$129
10 Base-T Active Hub (12 Ports)	$529
NOVELL Netware V 2.2 (5 Users)	$520
NOVELL Netware V 2.2 (10 Users)	$1100
NOVELL Netware V 3.11 (10 Users)	$1395
NOVELL Netware V 3.11 (20 Users)	$1950

NOTEBOOKS

386-SL 20MHz
- 2MB RAM, 60MB HDD . $1679

386SX-20MHz
- 2MB RAM, 40MB HDD . $1399

OTHER NOTEBOOKS . . . PLEASE CALL!!

- All systems carry a (1) year parts and labor limited warranty
- (2) year warranty on mainboards
- Ask about our service contracts and repair rates
- Prices are subject to change without prior notice
- 24 Hour Burn-In is required

Hours:
M-F 9:00 am - 7:00 pm
Sat 10:00 am - 5:00 pm
Sun Closed

ULTIMATE COMPUTER SOLUTIONS

3303 Harbor Blvd., Suite D-7
Costa Mesa, CA 92626
Tel: (714) 754-5433
Fax: (714) 754-4464

Leasing & Financing Available

American Express, Visa & MasterCard Accepted

Financing and leasing are subject to credit approval

Sun Flower
South Coast
405 FWY
Harbor Blvd.
Baker
N

rect-mail pieces, corporate literature, brochures, and other collateral material—for financial-industry clients such as Wells Fargo, Bank of America, Citibank, and Chase Manhattan.

> ***Companies** are working with applications, not only across the country, but around the world. They are doing it with wide-area networks (WANs).*

Wilcox & Associates has, atypically, placed all of its composition, layout, and production work into the hands of Business Link over the WAN. "Wilcox turned over his art department," says Business Link President Todd Melet. The service bureau does a design based on specifications, and the creative director at Wilcox manages the final composition of the document in real time. "In the old days," Wilcox claims, "you either had to camp out at the typesetter, or send it back and forth over and over." Working with Business Link online lets Wilcox focus his staff's creative talent entirely on client needs without losing the fast turnaround he requires. "A lot of our work is merger related, which means there's a very short lead time. If we don't like the drop shadow," Wilcox explains, "we say, 'Let's lighten that up to a 70% tint.'" The bureau prints proofs remotely on Wilcox's laser printer, and after approval, the files are imaged at Business Link.

Ordinary phone lines can also be used in some applications without creating a WAN. Farallon Computing itself is an example of a company that's networking with a 9600bps modem to review and approve comprehensive ad layouts (comps) at its Salt Lake City advertising agency, Dahlin, Smith, White (DSW). "It takes a process that generally requires two to three days and does it in a morning," says DSW account executive David Blain. The review process ordinarily takes longer, because DSW must overnight hard copy of its ads to the client and wait for a response. If changes are required, the process must be repeated—sometimes more than once.

For Farallon, DSW scans comps at low resolution, and displays them on a 14" monitor using Adobe Photoshop. Farallon uses Timbuktu to interact with the designer online, and make necessary changes. Due to its narrow bandwidth, this system doesn't support high resolution, or rapid transfer of large graphic files; and because it lacks a half router it doesn't connect their local networks. However, even subtle design elements such as color are available for review.

Its client's success has encouraged DSW's own investigation of true WAN solutions. Blain says that improving turnaround with this technology is paramount for DSW: "The ability to get the client's message into the market faster gives them a competitive advantage, and that gives us an advantage as an agency." The company is now considering using a 56Kbit WAN to transfer font files from its typographer and EPS files to its printer.

Despite certain limitations, the more widespread availability of 56Kbit service gives it a definite advantage over ISDN. International Transware President Eric Gould says, "A lot of people think they have to wait for ISDN, but they don't. Any 56Kbit service will give them comparable performance—usually at a lower cost." Gould also maintains that DSUs are cheaper than the terminal adapters required by ISDN, and in some cases, even the service is cheaper today. ■

IBM • SANYO • LEADING EDGE • DTK • SPERRY • AST • WYSE • NEC •

TATUNG • PANASONIC • ZEOS • SHARP • NORTHGATE • HYUNDAI • AST •

GATEWAY • EPSON • TANDY • DELL • NCR • EVEREX • COMPAQ • NEC •

ROM BIOS UPGRADES

Solve Your Compatibility Problems!

AWARD • AMI • PHOENIX • MR BIOS

With our seven years experience in the ROM BIOS Business, you can be sure we will direct you to the **CORRECT SOLUTION** for **ALL YOUR BIOS UPGRADE NEEDS.**

THE LARGEST VARIETY OF ROM BIOS UPGRADES IN THE WORLD!

We have the Bios for you,
whether you have an original IBM or
one of the many compatibles on the market

FEATURES OF A NEW BIOS

- **Support for 360K, 720K, 1.2 MB, 1.44 MB & 2.88 MB floppy drives**
- **Support for 4 floppy drives**
- **Full Windows 3.1 support**
- **Novell and Netware support**
- **DOS 5.0 support**
- **Faster I/O speed**
- **IDE hard drive support**
- **Full OS/2 support**
- **Support for 47 different hard drives, plus two user defined**
- **Virus protection**
- **Password protection**
- **Multiple Comm Port support**
- **101/102 key keyboard support**
- **DR DOS Support**
- ***And More...***

MasterCard **SMART**MICRO TECHNOLOGIES Inc. VISA

• **FREE** Catalog • **FREE** 1 Year Update • **FREE** Chip Puller
• **FREE** Tech Support • Volume **DISCOUNTS** • Dealers Welcome
• Corp. & Univ. P.O.'s are Welcome • Same Day Shipping

WE WILL BEAT ANY COMPETITOR'S PRICE!!!

We also sell Memory and Motherboard Products

FAX (805) 371-0012 **ORDER (800) 422-9979** LOCAL (805) 371-0055

143 TRIUNFO CANYON ROAD, SUITE 103 • WESTLAKE VILLAGE • CALIFORNIA 91361

ACER • SAMSUNG • KAYPRO • COMPUADD • PACKARD BELL • TATUNG

ONE STOP INTEGRATOR • NON-STOP CUSTOMER SERVICE

Cal☆

CERRITOS **(310) 809-3229**

- 1.2 & 1.44 TEAC FD/Conner HD
- 101 Key Enhanced Keyboard
- 2F/2H 1:1 IDE Controller
- I/O Card w/1P 2S 1G
- 14" 0.28mm SVGA Color Monitor
- 1024x768 SVGA Card w/1MB
- High Resolution Serial Mouse
- MS-DOS 5.0 w/Manual

WITH

CAL-STAR COMPUTER

486DX/50	4 MB RAM • 200 MB HD • Big Tower • 64,000 Colors Non-Interlaced Monitor	**$2349**
486DX/33	4 MB RAM • 120 MB HD • Big Tower • 64,000 Colors Non-Interlaced Monitor	**1849**
486SX/20	4 MB RAM • 120 MB HD • Mid Tower • 64,000 Colors Non-Interlaced Monitor	**1549**
386DX/40	4 MB RAM • 120 MB HD • Desktop	**1399**
386DX/33	4 MB RAM • 120 MB HD • Desktop	**1349**
386SX/25	1 MB RAM • 40 MB HD • Desktop	**949**

• 8 Bit Ethernet . . . . .**$99** • 8 Bit Arcnet **$49**

• 16 Bit Ethernet . . . **Call** • 16 Bit Arcnet **79**

*****PLEASE CALL FOR COMPLETE NETWORK PRODUCT LINE!*****

11347 E. 183rd STREET, CERRITOS

paper:

Xerox Advanced Document Services crew (l-r): President Paul Ricci, Director of Development Jennifer Ware, and system architect Martin Cooper.

The Quarter-Ounce Portable Office From Xerox

By Mary Eisenhart
Photos: Paul Winternitz

"When we were at PC Expo, we had people walk up to us and say, 'Well, why do I need this? I've got my laptop, I've got my hand scanner, I've got my portable printer. Why do I need this?'

"And we would say, 'Okay, where are they?' And the people would say, 'Oh, back in my hotel room.'

"We'd say, 'Exactly.'

"This sheet of paper is the most portable medium. If you're just going to send, store, and retrieve documents, this is your quarter-ounce laptop. You don't need to carry all that stuff around.

"We're not trying to replace laptops. We're providing another computing tool."

—Jennifer Ware

Who among us has not gone on the road and discovered, usually at 3 am on Sunday, that we've left behind some vital document for a presentation the next morning—scheduled for *hours* before anyone's in our office to deal with the situation?

Or needed to get information from a remote location to multiple destinations in a hurry? Or to see the results of a project that its creators hadn't quite finished when we had to leave town?

Assuming you had your portable computer on the road, along with the right modem, the right software, and a fair amount of luck, you might be able to get what you need. But again, who among us does not have horror stories of modem-incapable hotel phones, sudden battery failure, or any of a host of other problems that separate us from the information we need?

If your computer back at the office happens to be a 386 or 486 running Windows 3.x, and it's set up with a supported fax card and some revolutionary new software from Xerox, your life just got a lot easier. In your nightmare scenario of being stranded in the hotel with your vital information thousands of miles away, all you need to do is fax a blank sheet of paper to your machine from any fax machine you can find (and, as business travelers can attest, fax machines are a lot easier to find than modem-capable phones...).

Within minutes, your computer has taken the blank sheet of paper as an indication that you need something, and faxes you back a form. That, in turn, allows you to request further forms for more specific information, print out that forgotten report, or

> Jennifer Ware: "There was a realization one day that people like paper, and that we ought to stop fighting it. Because every time you try to take paper away from people, they scream. Paper is an alternative platform. It's not a replacement, it's a supplemental platform for getting your work done."

route documents on your home computer to multiple fax machines around the world.

You don't need a laptop computer. You don't need a modem. All you need is a blank sheet of paper and a fax machine to get your portable office in full operation.

PaperWorks

Xerox's Palo Alto Research Center has acquired a certain renown over the years as the source of many technological breakthroughs that changed computing forever—and usually, from Ethernet to PostScript to most of the Macintosh interface, went on to become the foundation of somebody else's successful startup. PARC is a research-oriented facility—turning research into actual product has not been its historical function.

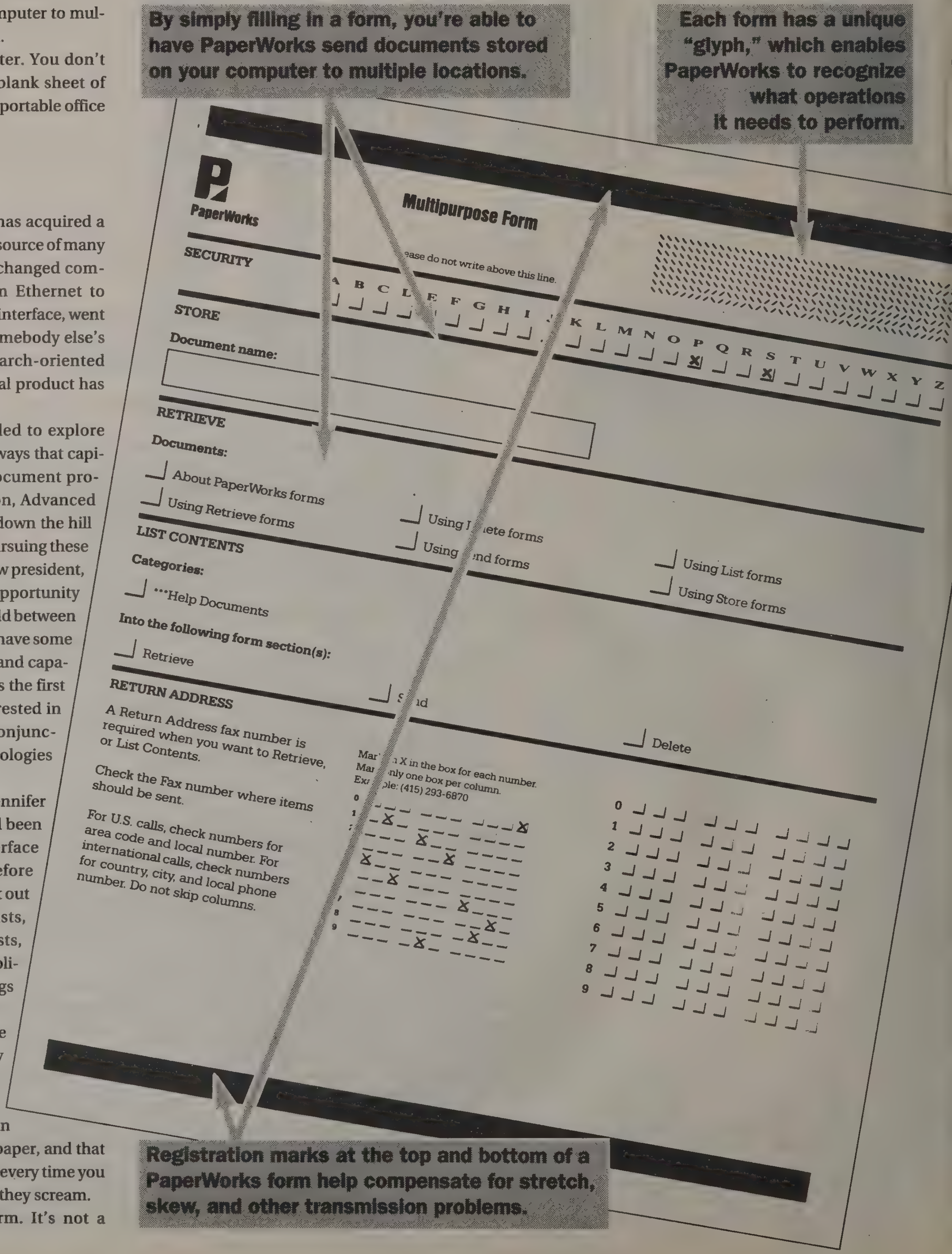
In recent years, Xerox has decided to explore bringing PARC's work to market in ways that capitalized on its other strengths in document processing. The result is a new division, Advanced Office Document Services, located down the hill from PARC itself and dedicated to pursuing these opportunities. Says the division's new president, Paul Ricci, "We believe there's an opportunity to build products that bridge the world between paper and electronic media, and we have some ideas for products that will do that, and capabilities to enable that. PaperWorks is the first example of that. Xerox is very interested in that world, and we're working in conjunction with PARC to take those technologies and market them."

Adds Director of Development Jennifer Ware, "The researchers at PARC had been working with the paper user interface technology for quite a few years before we came on board to make a product out of it. Working with social scientists, anthropologists, computer scientists, they had prototyped a number of applications for using paper to get things done.

"What we did is, we went in there and tried to pick one of the many ideas they had and turn it into a product.

"There was a realization one day in the PARC cafeteria that people like paper, and that we ought to stop fighting it. Because every time you try to take paper away from people, they scream.

"Paper is an alternative platform. It's not a



By simply filling in a form, you're able to have PaperWorks send documents stored on your computer to multiple locations.

Each form has a unique "glyph," which enables PaperWorks to recognize what operations it needs to perform.

PaperWorks

Multipurpose Form

ease do not write above this line.

SECURITY

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒ ☐ ☐ ☒ ☐ ☐ ☐ ☐ ☐ ☐ ☐

STORE

Document name:

RETRIEVE

Documents:

☐ About PaperWorks forms
☐ Using Retrieve forms
☐ Using D ete forms
☐ Using nd forms
☐ Using List forms
☐ Using Store forms

LIST CONTENTS

Categories:

☐ ***Help Documents

Into the following form section(s):

☐ Retrieve
☐ S nd
☐ Delete

RETURN ADDRESS

A Return Address fax number is required when you want to Retrieve, or List Contents.

Check the Fax number where items should be sent.

For U.S. calls, check numbers for area code and local number. For international calls, check numbers for country, city, and local phone number. Do not skip columns.

Mar n X in the box for each number.
Mar nly one box per column.
Exa ple: (415) 293-6870

Registration marks at the top and bottom of a PaperWorks form help compensate for stretch, skew, and other transmission problems.

Highest Quality Systems & Service, At The Lowest Prices!

MAGICTEK COMPUTERS

TEL: (714) 939-9220
FAX: (714) 939-9221
BBS: (714) 939-9219

FINANCING AVAILABLE

DEALERS/ CONSULTANTS CASES AVAILABLE CALL FOR PRICING!!

THIS MONTH'S SPECIAL

ZyXEL v.32 bis 14,400bps 1496B MODEM/FAX

ONLY $325
(w/Purchase of 486-33MHz System)

486-33MHz
256K CACHE

- 486-33MHz CPU
- 256K External Cache
- Built-In Math Co-Processor & 8K RAM Cache
- 4 Meg Installed Expandable To 32 Meg On Board
- 200MB IDE 15ms
- IDE Controller
- 1.2 & 1.44 Floppy Drive
- AT I/O, 2 Serial, 1 Parallel, 1 Game Ports
- Super VGA Card w/1024K (32K Colors)
- Super VGA Monitor Non-Interlace (.28MM)
- 101 Enhanced Keyboard
- Full Size Tower Case & 250W (UL) Power Supply

$1969

50 MHz Available	CALL
Local Bus Available	CALL

386-40MHz
128K CACHE

- 386-40MHz CPU
- 128K External Cache
- 4 Meg Installed
- 80387 Math Co-Processor Socket
- 120MB Hard Drive
- IDE Controller
- 1.2 & 1.44 Floppy Drive
- AT I/O, 2 Serial, 1 Parallel, 1 Game Ports
- Super VGA Card w/1024K
- Super VGA Monitor (1024x768, .28mm)
- 101 Enhanced Keyboard
- AT Digital Tower Case & 200W Power Supply

$1299

1 Year Parts & Labor Warranty For Systems

386-25MHz

- 386-25MHz CPU
- 80387 Math Co-Processor Socket
- 100MB Hard Disk 18ms
- VGA 256K
- AT Digital Tower Case & 200W Power Supply

$999

386SX-25MHz

- 386SX-25MHz CPU
- 80387 Math Co-Processor Socket
- 40MB Hard Disk 28ms
- VGA Card 16 Bit
- Mini Tower Case & 200W Power Supply

$859

SYSTEMS ABOVE INCLUDE:

- 1024K Installed
- 16 Bit 1:1 H&F Controller (IDE)
- 1.2 Floppy Drive
- AT I/O, 2 Serial, 1 Parallel, 1 Game Ports
- VGA Monitor
- 101 Enhanced Keyboard

NOTEBOOK

- 386SX 25MHz
- 2MB RAM
- 1.44MB Drive
- 80MB Hard Disk
- VGA Screen
- 2 Serial, 1 Parallel
- Cigarette Lighter Adapter
- Carrying Bag
- FAX Modem

$1525

MONITORS:

Viewsonic S-VGA .25 Non-Interlace V5	$499
Viewsonic 4E	$309
Super VGA 1024x768 .28	$265
Viewsonic 6 Non-Interlace	$339

NETWORKING CARDS:

8 Bit Arcnet	$49
16 Bit Arcnet	$79
8 Bit Ethernet	$99
16 Bit Ethernet	$109
4 Ports Active Hub	CALL
8 Ports Passive Hub	CALL
Novell Netware	

NEW PRODUCTS:

Zyxel Fax Modem
V.32 14,400 bps
V.42 Error Control
V.42 bis Data Compression

1496B Internal	$355
1496E	$375
1496S Digital	$550

ZyXEL

HIGH SPEED MODEMS
14.4K bps DATA +14.4K bps FAX

Caller ID

- High speed compatibility with V.32 bis and V.32; low speed compatibility with V.22 bis at 2.4K bps and V.22/BELL 212A at 1.2K bps.
- Industry standard V.42 and MNP5 and 4 error correction.
- DTE speeds up to 57.6K bps with CCITT V.42 bis and MNP5 data compression
- Class 2 G3 FAX, V.17-14.4K bps send/receive with PC FAX software.
- Compatible with standard AT Command Set and V.25 bis autodial.

Security Function

- ZyXEL 14.4K bps high speed modems give you more technology for a lower price than any other modem.
- Caller ID
  Displays caller's phone number, along with time and date of call. Take the call instantly or the modems will save information to retrieve later.
- Multi-Level Security
  Security password protection and automatic call-back features are designed so only authorized callers can access your system.

Fast Renegotiation

- Fast Renegotiation
  ZyXEL modems combine fast re-train with auto fall forward/fall-back, working most efficiently in poor line conditions.

1218 E. Katella, Anaheim, CA 92805

MasterCard VISA

BUSINESS HOURS:
M-Fri: 9:30 a.m. - 7:00 p.m.
Sat.: 10:00 a.m. - 3:30 p.m.
Prices Subject To Change Without Notice.

Paul Ricci: "We believe there's an opportunity to build products that bridge the world between paper and electronic media. PaperWorks is the first example of that."

replacement, it's a supplemental platform for getting your work done. There's certain computational-bound things that are obviously better done sitting at your PC, and there's other things where you can lay out your paper, see all your pages at once. You're not limited by your screen—even though screens are getting bigger, you can really only look at one thing at a time on the screen. There are some things that are just better done on paper."

While users would happily agree that a sheet of paper is often infinitely preferable to many pounds of computer equipment, getting a piece of paper to extract useful information from a computer is a formidable technical challenge.

Explains system architect Martin Cooper, "The key is some pretty heavy-duty image processing code that we have. This is one of the technologies we took from PARC and built into this product, along with the technology involved in the digital data here.

"The image processing code allows us to very quickly determine whether a page is a form, and compensate for, for instance, skew or stretch or shrink on a form, because of problems with the fax transmission. And then the digital data gets us to how we can identify this particular form, once it's in the PC.

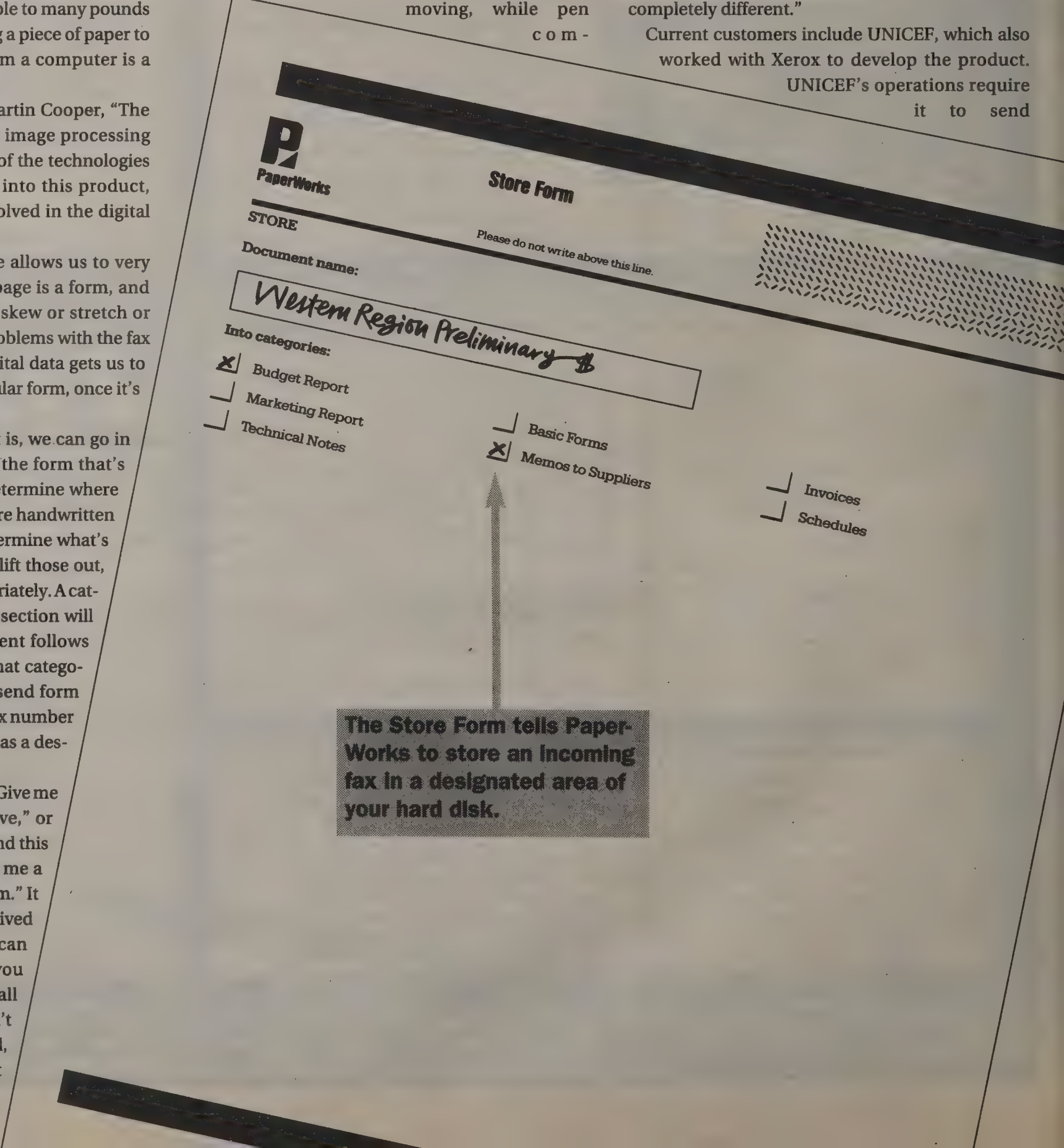
"Once we know what form it is, we can go in and look at the description of the form that's stored on the disk, and then determine where check marks could be, and where handwritten regions could be. And then determine what's checked and what's written in, lift those out, and then interpret them appropriately. A category name that's in the Store section will indicate that whatever document follows this form should be stored in that category. And a person's name on a send form would indicate 'pick out their fax number from the database and use that as a destination.'"

Adds Ware, "You can specify 'Give me a form back that lets me retrieve," or "Give me a form that lets me send this on to somebody else," or "Give me a form that lets me delete that item." It can list all the items you've received in your fax mailbox, and you can specify exactly which ones you want to deal with, instead of all your fax mail. That way you don't have to retrieve all your fax mail, just the specific one. You don't have to pre-create that form, because you don't know what's going to be in your fax mailbox."

While the technology has overtones of both Optical Character Recognition and handwriting recognition, it's really neither, says Cooper. "Technically there's some overlap," he explains, "but they're really different technologies. Even if you look at OCR versus the kind of technology you're seeing in pen computers, those are different technologies. OCR is based on something that isn't moving, while pen computing is based on something that is moving. Technically, we're closer to the OCR technology, but the kinds of things we're doing are actually quite different from the kinds of things that are going on in most OCR systems."

Ware elaborates: "This is a pen computing interface, because to the user it looks the same. People will communicate and compute using a pen and checking and making marks. How you do it, how you implement it, underneath the technology is completely different."

Current customers include UNICEF, which also worked with Xerox to develop the product. UNICEF's operations require it to send


PaperWorks

Store Form

STORE

Please do not write above this line.

Document name:

Western Region Preliminary $

Into categories:

☒ Budget Report
☐ Marketing Report
☐ Technical Notes
☐ Basic Forms
☒ Memos to Suppliers
☐ Invoices
☐ Schedules

The Store Form tells PaperWorks to store an incoming fax in a designated area of your hard disk.

CALIFORNIA Computer Show & Sale

LOWEST PRICES IN THE USA!

PC Compatibles • Hardware • Software • Accessories

UPCOMING SHOWS

CSUN, NORTH CAMPUS
July 25, 1992 • 18000 Devonshire Blvd., Northridge

ANAHEIM STADIUM—INDOORS
August 1, 1992 • 2000 State College Blvd., Anaheim

GLENDALE CIVIC AUDITORIUM
August 2, 1992 • 1401 North Verdugo Rd., Glendale

CSUN, NORTH CAMPUS
August 22, 1992 • 18000 Devonshire Blvd., Northridge

GLENDALE CIVIC AUDITORIUM
August 23, 1992 • 1401 North Verdugo Rd., Glendale

ANAHEIM STADIUM—INDOORS
September 12, 1992 • 2000 State College Blvd., Anaheim

CSUN, NORTH CAMPUS
September 19, 1992 • 18000 Devonshire Blvd., Northridge

All Shows from 10a.m. to 4p.m.

Admission: $6^{00}
Children under 12 FREE

FOR INFO. CALL 1-800-533-7220

BBS: 415-340-9370

$1^{00} OFF

Good For All
Of The Above Shows.
Limit 1 discount coupon per person.
Regular Admission $6^{00}
Copies accepted.

DISCOUNT COMPUTER SUPPLIES

⇨ NOW AVAILABLE PUBLIC DOMAIN SOFTWARE $1.00/DISK ⇦
****CALL FOR COMPLETE LIST OF AVAILABLE TITLES ON DISK!****
NO MINIMUM—LIFETIME WARRANTY ON DISKETTES

5.25″ DS/DD w/sleeves & labels—Preformatted	.25¢ ea
Color DS/DD Disk w/sleeve & label (15 colors available)	.40¢ ea
DS/HD 1.2 Meg for 'AT'—w/sleeve & label ....SPECIAL!	.50¢ ea
3½″ DS/DD bulk 720K w/labels	.45¢ ea
3½″ DS/HD bulk 1.44 meg	.75¢ ea
3½″ Label kit—10 labels in 5 colors	.35¢ ea

MOUSE—IDENTITY w/Dr. Halo III Software	.25.00
DBW-5300 5.25″ 2 Drawer Disk File—Holds 300	.17.00
DBW-3210 3.5″ 3 Drawer Disk File—Holds 210	.17.00
DS-100L—Holds 100 5¼″ disks w/lock & key	.5.00
DS-3080L—Holds 80 3½″ disks w/lock & key	.5.00
SS—6 outlet surge suppressor w/lit master switch	.6.50
CLIP copy holder attaches to monitor	.3.00

PRINTER RIBBONS	Black	Single Color	Four Color
Citizen MSP 120D, 180D, GSX-140	$4.00	$5.00	$9.00
Epson MX/FX 80, 85, 86/Citizen MSP 10	3.00	5.00	
Epson MX/FX 100, 286/LQ 1000, 1050	4.50	3.50/6.00	
Imagewriter I/II, Prowriter	3.00	4.00	6.00
Panasonic 1090, 1124 - Seamless	4.00	5.00	
Star NX 1000	3.00	4.00	7.00
Star NX 2400/2420	5.00	N/A	13.00
Toshiba P1350, P321, P341, P351	3.50	2.50	
Toshiba P321SL	5.00	4.50	
Inkmun Inks DESKJET Refill (w/Cleaning solution) - 2/Pack	15.00	18.00	
Deskjet Cartridge #51608A	18.00 (w/Trade-In $16.00)		
Deskjet Extended Life #51626A	29.00 (w/Trade-In $27.00)		

CALL FOR OTHER RIBBON PRICES & **FREE CATALOG**

Hours:
M-F 9:30-6:00 p.m.
Sat. 10:00-3:00 p.m.

VISA
MasterCard

DATA DEPOT

16691 Gothard St., Suite B
Huntington Beach, CA 92647
(714) 841-9551/(800) 899-9551

Shipping 5% of order **(minimum $3.50)** & $4.00 for C.O.D.
California residents add 7.75% sales tax

HARD DISK DRIVE SALE

For Lowest Prices On Hard Drives From 5MB to 1.2 Gigabyte

20 MB REFURBISHED SPECIAL	**$75**
360K Floppy Drive	**$25**
W/Trade In of 20MB	**$60**

SIM-TRADE CO., INC.

COMPUTER PROBLEMS?

We have the Answer!

Specialists in:

DATA RECOVERY

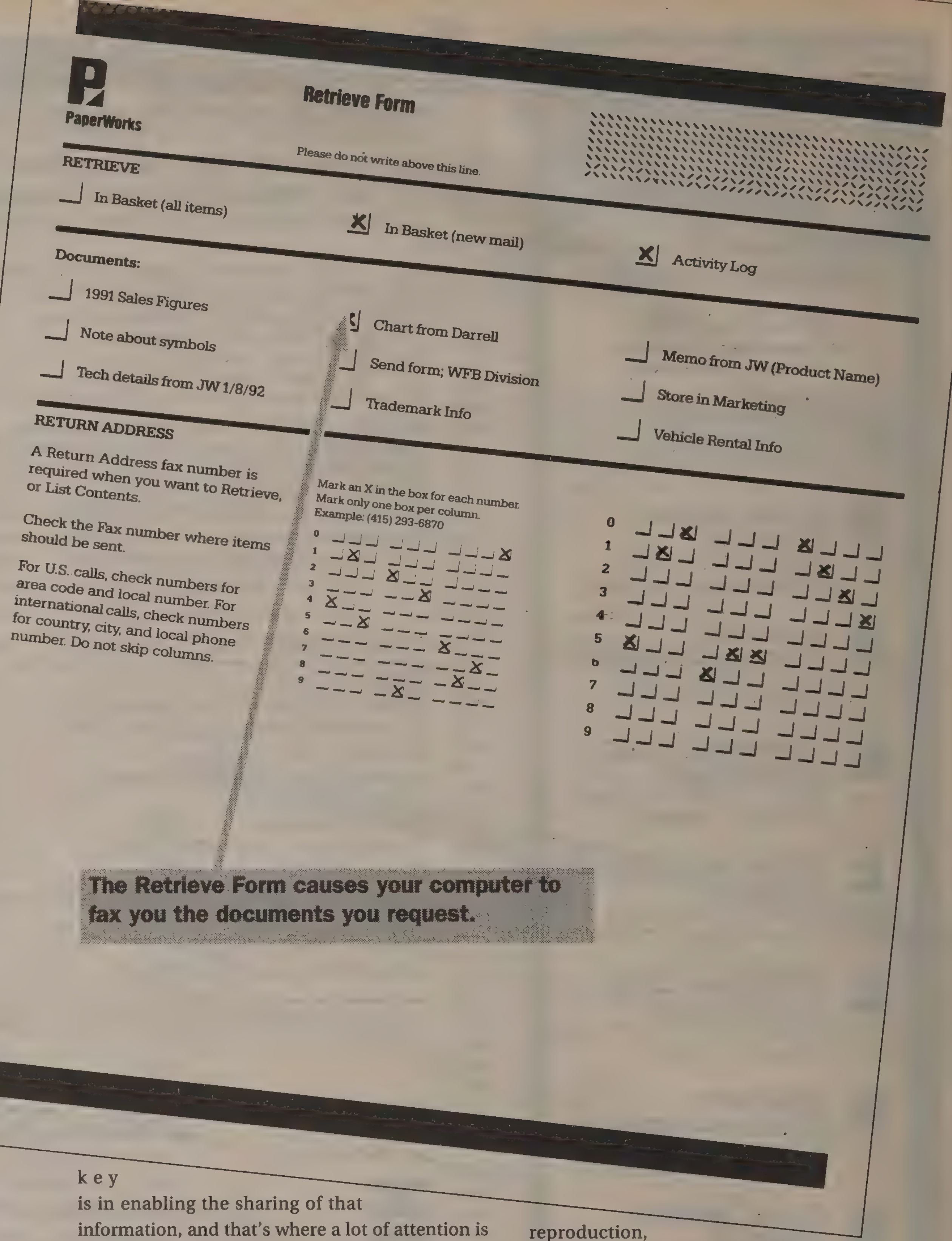
We recover data from your crashed hard disk drives and floppy diskettes

• Fast Turnaround • Reliable Service • Confidential Handling

Disk Duplication 5 1/4" & 3 1/2"— IBM, Macintosh, Amiga

8040 Remmet Ave. #1
Canoga Park, CA 91304
(818) 703-5155
Fax (818) 703-5964

ASK ABOUT OUR MOBILE COMPUTER SERVICE 1-800-HELP-4-U2



PaperWorks

Retrieve Form

Please do not write above this line.

RETRIEVE

☐ In Basket (all items)
☒ In Basket (new mail)
☒ Activity Log

Documents:

☐ 1991 Sales Figures
☐ Note about symbols
☐ Tech details from JW 1/8/92
☒ Chart from Darrell
☐ Send form; WFB Division
☐ Trademark Info
☐ Memo from JW (Product Name)
☐ Store in Marketing
☐ Vehicle Rental Info

RETURN ADDRESS

A Return Address fax number is required when you want to Retrieve, or List Contents.

Check the Fax number where items should be sent.

For U.S. calls, check numbers for area code and local number. For international calls, check numbers for country, city, and local phone number. Do not skip columns.

Mark an X in the box for each number.
Mark only one box per column.
Example: (415) 293-6870

0	☐	☐	☒	☐	☐	☐	☒	☐	☐	☐
1	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐
2	☐	☐	☐	☐	☐	☐	☐	☒	☐	☐
3	☐	☐	☐	☐	☐	☐	☐	☐	☒	☐
4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☒
5	☒	☐	☐	☐	☒	☒	☐	☐	☐	☐
6	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐
7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
9	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

The Retrieve Form causes your computer to fax you the documents you request.

thousands of faxes per day to locations all around the world, and PaperWorks has proved a valuable tool. Says Ware, "UNICEF uses fax machines in countries I can't even pronounce the names of, because fax is more reliable for them than even trying to reach somebody by phone."

Mortgage brokers, she says, are very fond of the product. And, as Cooper points out, you don't even need to be computer literate to use PaperWorks from remote locations—you just need to be able to fill out a form.

He explains, "There's an alternative view of PaperWorks as a product, where the user is not the person who has the PC. And in that context, it is usable and useful in the kind of environment where you have many people using it. For instance, you might have a sales force on the road that might need to access the most up-to-date price sheets that are on a single PC. All those people are users, but they're certainly not all sitting at the PC using it. They needn't know anything about the PC to use the product."

The Future

PaperWorks is currently in its infancy. Its only version requires a 386SX, 386, 486SX or 486 running Windows 3.x, though Ware says they're looking at the possibility of Macintosh and UNIX versions. It currently supports only four fax cards, admittedly industry leaders: Intel SatisFAXtion, the Complete Fax, the Complete Communicator, and CEI proFAX. It will transmit PostScript files, as well as files generated by Excel, Word, and WordPerfect.

But aside from the obvious fact that more platforms and application/device support are sure to appear, PaperWorks is the first in a series of products designed to take advantage of Xerox's technology for document handling.

What's a document? This has been an ongoing subject of discussion at PARC, says Cooper. "Someone could bring in a slab of rock that came off a wall with a cave painting on it, and that's a document. How are you going to transmit it?

"You can conceive of almost anything that has information on it or in it as being a document. The key is in enabling the sharing of that information, and that's where a lot of attention is going. Because the more people try to share, the more they need standards."

And so, while they're reticent about discussing unannounced products, there are some obvious directions, one of which has to do with storing information from the analog world in digitally useful form. Xerox is, for instance, a leader in Optical Character Recognition technology, and it's a reasonable assumption that someday you'll be able to do more with PaperWorks documents than just fax them or read them.

Says Ricci: "PARC has developed some truly remarkable technology. Transparency really does provide the capability of people using documents in much more productive ways, getting a lot more power out of them, using this notion of paper as a transparent interface to underlying computation. The charter of this division is to build products and capabilities using this technology that provides these more powerful services.

"In a world of digital platforms and digital reproduction, fax machines, personal computers—you'd like to be able to move documents around in a very seamless way across that membrane, the digital network. What we want to do is build products that let you move documents across any platform in very simple ways, such as between your fax and your PC. When you have this paper interface to fax machines, you can think of each fax machine as a sort of entry port to your computing world, wherever it is. And Xerox sells lots of these document machines, which one can think of as providing that kind of capability as well.

"We are working with PARC on some of the ongoing technologies in our next generation of products now. There's a very close relationship. We have people working with PARC people, and I expect that to continue.

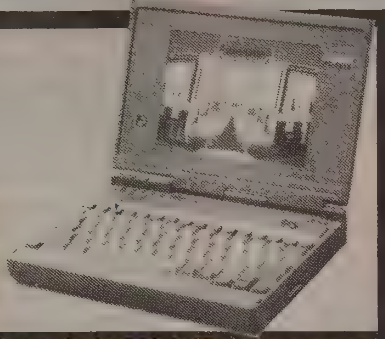
"If you really think about using paper as a user interface, it's very transparent. It doesn't impose itself. So the particular application and some of the marketing for PaperWorks is oriented towards

continued on page 103

tote-a-lap

"experts in portable intelligence"

SHARP PC-6881 Color TFT LCD Notebook Computer

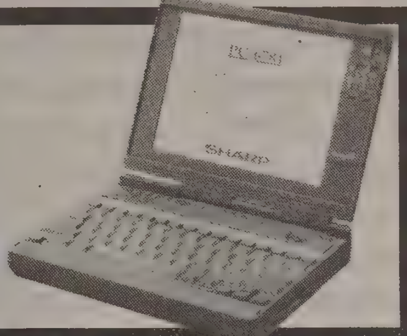


120MB VERSION NOW AVAILABLE!

Very Compact, Lightweight High Performance i386 SL Notebook with High Resolution Color TFT LCD Display, 80MB HDD, Built-in Micro Trackball, and PCMCIA Standard Release 2.0 IC Card Slot.

- High-resolution 8.4" color TFT LCD display
- 256 out of 262,144 colors with VGA emulation
- Built-in LCD and external CRT display can be used simultaneously
- Built-in Micro Trackball
- Sophisticated Power Management for Battery Operation
- 80MB HDD, 3.5" 1.44MB FDD
- Built-in PCMCIA Standard Release 2.0 IC card slot
- Lightweight, letter-size (11" x 8.5" x 1.9")

SHARP PC-6781 Notebook Computer



120MB VERSION NOW AVAILABLE!

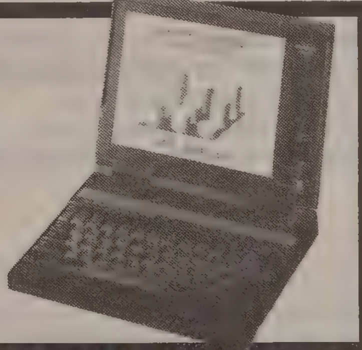
Very Compact, Lightweight High Performance i386 SL Notebook with 80MB HDD, Backlit Paper-white VGA Display, Built-in Micro Trackball, and PCMCIA Standard Release 2.0 IC Card Slot

- Sophisticated Power Management for Battery Operation
- 80MB HDD, 3.5" 1.44MB FDD
- Set Associative Cache Control, 16KB Cache Memory
- Backlit Triple Supertwist LCD with VGA Emulation
- Built-in Micro Trackball
- Built-in PCMCIA Standard Release 2.0 IC Card Slot
- Lightweight Letter Size (11" x 8.5" x 1.6")

SHARP PC-6800/120MB COLOR W/2MB	CALL
SHARP PC-6800/120MB COLOR W/4MB	CALL
SHARP PC-6800/120MB COLOR W/6MB	CALL
SHARP PC-6800/120MB COLOR W/8MB	CALL
SHARP PC-6881/80MB COLOR W/2MB	CALL
SHARP PC-6881/80MB COLOR W/4MB	CALL
SHARP PC-6881/80MB COLOR W/6MB	CALL
SHARP PC-6881/80MB COLOR W/8MB	CALL
SHARP PC-6700/120MB W/2MB	2557
SHARP PC-6700/120MB W/4MB	2627
SHARP PC-6700/120MB W/6MB	2677
SHARP PC-6700/120MB W/8MB	2747
SHARP PC-6781/80MB W/2MB	2087
SHARP PC-6781/80MB W/4MB	2157
SHARP PC-6781/80MB W/6MB	2207
SHARP PC-6781/80MB W/8MB	2277
SHARP PC-6700/6800 2MB MEMORY UPGRADE (FAST 60ns LOW POWER)	CALL
SHARP PC-6700/6800 4MB MEMORY UPGRADE (FAST 60ns LOW POWER)	CALL
SHARP PC-6700/6800 512K IC SRAM MEMORY CARD	128
SHARP PC-6700/6800 1MB IC SRAM MEMORY CARD	198
SHARP PC-6700/6800 2MB IC SRAM MEMORY CARD	398
SHARP PC-6700/6800 INTERNAL SPARE BATTERY PACK	128
SHARP PC-6700/6800 EXTERNAL BATTERY SLICE	338
SHARP PC-6700/6800 NUMERIC KEYPAD	128
SHARP PC-6700/6800 EXPANSION UNIT (1-1/2 SLOTS)	1049
SHARP PC-6700/6800 2400B IC CARD INTERNAL MODEM	489
SHARP PC-6700/6800 80387SL-25 MATH COPROCESSOR	CALL
SHARP PC-6700/6800 SPARE AC ADAPTER/CHARGER (3RD PARTY)	208

SHARP PC-6220/20MB W/1MB		550
SHARP PC-6220/20MB W/2MB		600
SHARP PC-6220/20MB W/3MB		650
SHARP PC-6240/40MB W/1MB		700
SHARP PC-6240/40MB W/2MB		750
SHARP PC-6240/40MB W/3MB		800
SHARP PC-6200/60MB W/1MB	NEW!	750
SHARP PC-6200/60MB W/2MB	NEW!	800
SHARP PC-6200/60MB W/3MB	NEW!	850
SHARP PC-6200/6220/6240 1MB MEMORY UPGRADE		78
SHARP PC-6200/6220/6240/6340 BATTERY PACK (EXTERNAL)		189
SHARP PC-6200/6220/6240/6340 BATTERY PACK (INTERNAL)		105
SHARP PC-6200/6220/6240/6340 CRT INTERFACE BOARD		123
SHARP PC-6200/6220/6240/6340 EXTERNAL 3.5 1.44 FLOPPY DRIVE		297
SHARP PC-6200/6220 40MB HARD DRIVE UPGRADE		388
SHARP PC-6200/6220/6240 60MB HARD DRIVE UPGRADE NEW!		598
SHARP PC-6200/6220/6240/6340 80C287-12 MATH COPROCESSOR		118
SHARP PC-6200/6220/6240/6340 2400B INTERNAL MODEM (3RD PARTY)		159
SHARP PC-6200/6220/6240/6340 2400B INTERNAL MODEM /MNP5/SEND		288
SHARP PC-6200/6220/6240/6340 NUMERIC KEYPAD		78

SHARP PC-6220 Notebook Computer



40, 60, 80 & 120MB NOW AVAILABLE!

A Super-Compact Lightweight 286 Notebook with a Paper-White VGA Display and 20MB Hard Disk

- Backlit Triple Supertwist LCD Display with VGA emulation
- True Notebook Size (11" x 8.5" x 14")
- Weighs only 4.4 lbs.
- 12MHz 80C286 Processor
- 20MB Hard Disk Drive

SHARP

FROM SHARP MINDS
COME SHARP PRODUCTS™

SHARP PC-8501 COLORSTAR LAPTOP 2MB · MEMORY UPGRADE	119
SHARP JX-9500/9500E/9500H/9700 1MB MEMORY UPGRADE	108
SHARP JX-9500/9500E/9500H/9700 2.5MB MEMORY UPGRADE	208
SHARP JX-9500/9500E/9500H/9700 4MB MEMORY UPGRADE	338
SHARP JX-9500PS POSTSCRIPT 1MB MEMORY UPGRADE	58
SHARP PC-3000/PC-3100 512K SRAM MEMORY UPGRADE	128
SHARP PC-3000/PC-3100 1MB SRAM MEMORY UPGRADE	198
SHARP PC-3000/PC-3100 2MB SRAM MEMORY UPGRADE	398
SHARP PC-6600/6641 60MB HARD DRIVE UPGRADE	318
SHARP PC-6600/6641/6661 80MB HARD DRIVE UPGRADE	518
SHARP PC-6600/6641/6661 120MB HARD DRIVE UPGRADE	698
SHARP PC-6600/6641/6661 2MB MEMORY UPGRADE (70ns)	58
SHARP PC-6600/6641/6661 2400B INTERNAL MODEM (3RD PARTY)	168
SHARP PC-6600/6641/6661 2400B INTERNAL MODEM /MNP5/SEND FAX	288
SHARP PC-6600/6641/6661 80387SX-25 MATH COPROCESSOR	128
SHARP PC-6600/6641/6661 NUMERIC KEYPAD	78
SHARP PC-6600/6641/6661 INTERNAL BATTERY PACK	118

tote-a-lap

550 Pilgrim Drive, Ste..F, Foster City, CA 94404
PHONE: (415) 578-1901
FAX: (415) 578-1914 (Prior appt's needed for will-calls, please)

TERMS & CONDITIONS:
All sales final. We charge a 25% restocking fee on all refused shipments and pre-approved returns. Prices are subject to change W/O notice. Warranty on all merchandise, except memory upgrades, is through the original manufacturer only, unless previously agreed upon and stated in our invoice. All Software, plus all merchandise that include a rom bios, are not returnable for credit, and are subject to an even exchange only. We accept purchase orders from credit worthy institutions, although prices may be slighty higher on some items. We will not ship to any account with an overdue balance. Purchase prices at the time of order are final. Not responsible for typographical errors.

QUALITY . . . . PERFORMANCE . . . . SERVICE . . . . SATISFACTION

DON'T LET A VIRUS RUIN YOUR DAY

VIRUS

WE TAKE A BITE OUT OF THE MANUFACTURING OUR OWN SYST

IMMUNIZED!!

All our systems are protected by our Virus Immunization card which has been proven to be today's most reliable and effective product. It eliminates all virus but does not occupy any memory or affect the speed of your computer. Since it is hardware designed, you never need to upgrade it or worry that it might be damaged by virus as software protection can be. With our virus immunized system, virus can never ruin your day!

ORCHID w/PRO-DESIGNER 486 DX - 50 MHz LOCAL BUS

- Full Tower Case w/250W **UL Power Supply**
- **Intel 486 DX** Microprocessor
- **AMI BIOS w/**Setup Utilities
- 256K Of 20ns Cache Memory
- **TEAC** 1.2 & 1.44 MB Drives
- 4 MB Of RAM Exp. To 32 MB
- 210 MB HD w/64K Cache **(Conner Or Maxtor)**
- **ORCHID** Pro-Designer IISw/1 MB(Local Bus)
- **Aamazing** 14″ SVGA (Non-Interlaced), (0.28mm, 1024x768)
- 2 Serial/1 Parallel/1 Game Ports
- WEITEK Math-CoProcessor Socket
- **FOCUS 5000** w/Calculator Keyboard
- Logitech Dexxa Hi-Resolution Serial Mouse

$2395

Upgrade to ORCHID FAHRENHEIT .... add $85

486 DX-MHz LOCAL BUS

- Full Tower Case w/250W **UL Power Supply**
- **Intel 486 DX** Microprocessor
- **AMI BIOS w/**Setup Utilities
- 256K Of 20ns Cache Memory
- **TEAC** 1.2 & 1.44 MB Drives
- 4 MB Of RAM Exp. To 32 MB
- 210 MB HD w/64K Cache **(Conner Or Maxtor)**
- **Aamazing** 14″ SVGA (Non-Interlaced), (0.28mm, 1024x768)
- 2 Serial/1 Parallel/1 Game Ports
- WEITEK Math-CoProcessor Socket
- **FOCUS 6000** Enhanced 101 Keyboard
- Logitech Dexxa Hi-Resolution Serial Mouse

486DX-33MHZ $1995
486DX-50MHZ(w/ET 4000) $2275

486 DX-33 MHz ISA

- Full Tower Case w/250W **UL Power Supply**
- **Intel 486 DX** Microprocessor
- **AMI BIOS w/**Setup Utilities **(Opti Chipset)**
- 256K Of 20ns Cache Memory
- **TEAC** 1.2 & 1.44 MB Drives
- 4 MB Of RAM Exp. To 32 MB
- 120 MB HD w/**(Maxtor Or Conner)**
- 16 Bit SVGA Card w/1 MB **U.S. Made Trident**
- **Aamazing** 14″ SVGA Color Monitor (Non-Interlaced), (0.28mm, 1024x768)
- 101 Key Enhanced Keyboard **Focus 6000**
- 2 Serial/1 Parallel/1 Game Ports
- WEITEK Math-CoProcessor Socket
- FREE **Logitech Dexxa** Hi-Resolution Mouse

$1549

486 DX-50 MHz $1795

386 DX-50 MHz CACHE

- **386** Microprocessor
- 6-Bay Mid. Tower Case w/230W **UL Power Supply**
- **AMI BIOS w/**Setup Utilities
- 64K Cache
- **TEAC** 1.2 & 1.44 MB Drives
- 4 MB Of RAM Exp. To 32 MB
- 120 MB 16ms HD w/**(Conner Or Maxtor)**
- 16 Bit SVGA Card w/1 MB Of RAM **U.S. Made Trident**
- **Aamazing** 14″ SVGA Color Monitor (Non-Interlaced), (0.28mm, 1024x768)
- 101 Enhanced Style Keyboard **Focus 6000**
- 2 Serial/1 Parallel/1 Game Ports
- Math-CoProcessor Socket
- FREE 3 Button **Logitech Dexxa** Hi-Resolution Mouse

$1245

386 SX-25 MHz

- **Intel 386** Microprocessor
- Mini Tower Case w/200W UL Power Supply
- 16 Bit SVGA Card w/1 MB U.S. Made Trident
- **AMI BIOS w/**Setup Utilities **(Opti Chipset)**
- TEAC 1.2 & 1.44 MB Drives
- 1 MB Of RAM Exp. To 16 MB
- **80 MB HD w/(Conner Or Maxtor)**
- **Aamazing** 14″ SVGA Color Monitor (.28 Dot, 1024x768)
- 101 Key Enhanced Keyboard Focus 6000
- 2 Serial/1 Parallel/1 Game Ports
- Built-In Real Time Clock
- Math-CoProcessor Socket
- FREE 3 Button Hi-Resolution Mouse

$995

WE WILL BEAT ANY ADVERTISED PRICE IN PARTS AND SYSTEM!

INFINITY SYSTEMS GROUP ASSURES YOU . . .

Full 1-Year, 2-Year Mainboard, 3-Year Labor Warranty • 30-Day Dead-On-Arrival Instant Replacement Policy • Lifetime Toll-Free Technical Support • 72-Hour RANTON-Dynamic Burn In Test • On-Site Service In The U.S.A. And Canada Available • Leasing & Net-Terms Available For Qualified Customers • PO's Of Qualified Corporations And Institutions Welcome.

intel inside

VISA

MasterCard

Infinity PC & Peripherals Inc.
dba INFINITY SYSTEMS GROUP

CORPORATE OFFICE

16580 Harbor Blvd., Suite M
Fountain Valley, CA 92708

TEL: (714) 839-2440
FAX: (714) 839-3561

SALES OFFICE

WEST L.A.
OPENING
SOON!!

MORTGAGE DIVISION

16480 Harbor Blvd., Suite 214
Fountain Valley, CA 92708

TEL: (714) 839-2194
FAX: (714) 839-2197

HIGH COST OF COMPUTERS BY EMS AND PASSING THE SAVINGS ON TO YOU!

NEED A FRIEND ON THE ROAD?

486DX/386DX CACHE NOTEBOOK

- Intel 486 Or Intel 386 Microprocessor
- Weight: 6 lbs.; Dimension 11″x8.5″x2″
- 4 MB Upgradeable To 16 MB
- 120 MB 17ms Hard Drive
- 82 Key w/12 Function Keyboard
- 1.44 MB Int. Floppy Drive
- 640x480 LCD w/Gray Scales
- 2 Serial/1 Parallel Ports
- AT Bus For Docking Station
- 800x600 Ext. Monitor Port
- Numeric Key Pad
- Rechargeable Battery Pack
- 100/240 AC/DC Adapter
- Luxury Carrying Case
- User Manual & Documentation
- FREE 3 Button Hi-Resolution Mouse

386 DX-33 MHz	**$1995**
486 DX-33 MHz	**$2450**

OPTIONAL ACCESSORIES

Battery Charger	$30
Battery Pack	85
Automobile DC Adaptor	50
External Fax/Modem Pocket	150
External Ethernet Adaptor	195
Docking Station	195

GAS PLASMA LCD PORTABLE

- Intel 386 Or Intel 486 Microprocessor
- 4 MB Or 70 ns RAM
- 120 MB HD 18 ms w/Maxtor Or Conner
- TEAC 1.2 MB Drive
- TEAC 1.44 MB Drive
- 640x480 Pixel Graphic Display
- 3 Expansion Slots Available
- 1024x768 On Ext. VGA Display
- Contrast Ratio 12:1 (150:1 Optional)
- 110/220V Auto-Switch Power Supply
- Users Manual and Documentation
- Heavy Duty Carrying Bag Included
- FREE 3 Button Hi-Resolution Mouse

LCD SCREEN

386-25SX	$1400
386-33 DX w/64K Cache	1495
386-40 DX w/64K Cache	1525
486-33 DX w/256K Cache	1920
486-50 DX w/256K Cache	2160

UPGRADE

Gas Plasma	$295
SVGA Plus (1024x768)	595

SYSTEM BOARD OK

CT 286/12	$57
ST 286/16	68
VI 386/20 SX w/IDE & 1/0 Built in	150
OP 386/25 SX	145
OP 386/25 DX w/CPU	185
ET 386/33 DX w/CPU	228
OP 386/40 DX w/CPU	238
OP 486/33 DX - 64K Cache - w/CPU	520
OP 486/33 DX - 256K Cache - w/CPU	550
OP 486/50 DX - 256K Cache - w/CPU	729

LOCAL BUS

OP 486/33/50 w/256K Cache 1 MB SVGA Card S3/ET 4000	$765 / $915
Orchid 486/50 w/256K Cache w/Orchid Pro-Designer IIs 1 MB SVGA Card	1250
Orchid 486/50 w/256K Cache w/Orchid Fahrenheit 1 MB SVGA	1300

ADD-ON BOARD

MGP Mono/Graphic/Printer Card	$15
TVGA 8900C SVGA Card w/1 MB U.S. Made (Trident)	65
OAK 256K VGA Card	39
PVGA - SVGA Card (Paradise WD90C30 chip set) w/1 MB	82
Diamond Speedstar 1 MB SVGA Card w/Hi-Color Chip/16 Mil Color	169
Diamond Stealth 1 MB (VRAM) Window Acceleration w/Hi-Color Chip	249
All Orchid Pro-Designer Card	Call
AT I/O w/Serial, 1P, 1G Port	13
IDE HD +FD Controller w/Cable	14
Super IDE HD +FD w/AT I/O w/Cable	19
Adaptec AHA - 1542 B SCSI HD +FD Controller - (Card Only)	219
Adaptec AHA - 1542 BK SCSI HD +FD Controller - w/Kit & Software	260
2400 Baud Smart - One Modem	40
2400/9600 Fax Modem Smart One	60

CASES

ISG Baby AT Case w/200W P/S (UL approved)	$75
ISG Mini Tower Case w/200W P/S (UL approved)	60
ISG Mid-Tower Case w/230W P/S (UL approved)	90
ISG Full Tower Case w/250W P/S (UL approved)	120
ISG Full Tower Case w/300W P/S (UL approved)	Call
ISG Full Tower Case w/300W with Wheels	Call

DRIVES

TEAC - 1.2 MB FDD (5¼)	$57
TEAC - 1.44 FDD w/Kit	55
TEAC - 1.2 + 1.44 (all in one) / 2.88 Floppy (3.5)	159/79
40 MB IDE Hard Drive	190
80 MB IDE Hard Drive	250
100 MB IDE Hard Drive	300
125 MB IDE Hard Drive	320
205 MB IDE Hard Drive	475
240 MB IDE Hard Drive	575

**** CALL FOR MORE PRICES ****

120 MB Tape Back-up CMB Jumbo	$189
250 MB Tape Back-up CMB Jumbo	255

MONITOR

MGC VGA Monitor 14″ (640x480) .41 Dot	$205
AAmazing SVGA Monitor 14″ (1024x768) .28 Dot	249
AAmazing SVGA Monitor 14″ Non-Interlaced	285
Viewsonic 5E Non-Interlaced (1024x768) 72 Refresh Rate	399

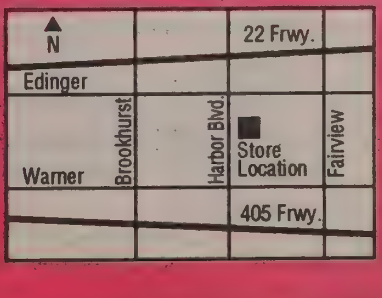
****CALL FOR ALL VIEWSONIC LINE****

NEW STORE HOURS. . .OPEN 7 DAYS A WEEK!

Mon–Fri 9am–6pm
Sat–Sun 11am–4pm

ORDERING INFORMATION:

MasterCard and Visa Accepted. No surcharge on credit card orders. Leasing and net-terms available to qualified customers. Shipping and handling are additional. C.O.D. orders add $10 special handling charge. Call for special U.P.S. Red/Blue terms. No sales tax outside of CA. Products labeled FREE on advertising are not covered by warranty. All returns must have RMA # issued by our Customer Service Department. All returns must be in original packaging and include original invoice, warranty cards, and documentation. Incomplete, unauthorized returns are non-refundable or subject to restocking charge. Returns of products not listed in standard configured systems are subject to a restocking charge. Refunds will be granted less deductions on freight, and charges related to the payment. All prices and specifications are subject to change without notice. Infinity Systems Group is not responsible for typography errors.



Update:

CompuExpo

"The old way of building and distributing PCs is now being challenged by a new paradigm. Today, end-users have a choice of multiple processor architectures, graphics technologies, operating systems, and system definitions. CompuExpo reflects this diversity of new channels, technologies, and system definitions."

—Gordon Campbell, President and CEO, Chips and Technologies, and Keynote Speaker, CompuExpo

The Global OEM Showcase

September 21—24

Las Vegas Convention Center

In this month's Industry Insight, news editor Paul Hoffman discusses the current and impending shakeout in the PC industry, as big-name and other vendors are forced to continually drop their prices in response to intense competition.

For resellers, VARs, and large-volume buyers alike, it's now a life-or-death matter to be able to find products that give the maximum performance and reliability at the lowest cost. Which is why CompuExpo, coming to Las Vegas in September, is a vital resource, bringing together developers, vendors, and customers from around the world—early enough to take advantage of the peak year-end selling season.

MicroTimes is proud to be a sponsor of CompuExpo. We believe that in an increasingly global business climate, it's important to have access to products and markets around the world to deliver the best value.

CompuExpo's exhibitors include companies seeking US, European, and Far East marketing partners; entrepreneurs and startup companies; as well as US-based leading providers of core content and key technology. The show is aimed specifically at PC direct marketers, large-volume end-users, government and corporate buyers; plus VARS, superstores, and mass merchants in search of low-cost suppliers. Products on display will include laptop/notebook/handheld computers, mass storage products, boards and cards, networking hardware and software, printers, multimedia, pen-based computers, and more.

Announced exhibitors include IBM, Chips and Technologies, Maxtor, Western Digital, and Microsoft; both Taiwan and Hong Kong will sponsor technology pavilions.

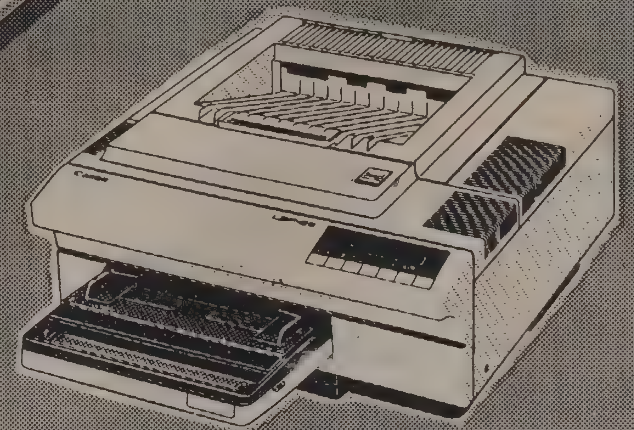
In addition to the exhibits, conference sessions have been chosen to give attendees strategically important information for their businesses, with topics ranging from "East-West Partnerships" to "Non-Intel CPUs Come of Age" to "Marketing PCs in a Commodity/Price War Environment."

Keynote speakers in addition to C&T's Campbell will include Lucy Baney, PS Director, Programming Systems Market Development, IBM; and Richard Fade, Vice President of OEM Marketing, Microsoft.

For exhibitor, registration and general information, call toll-free: 1-800-822-1229.

hp SERIES II

$995.00

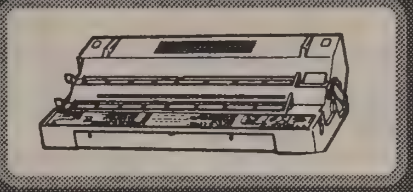


WITH
POSTSCRIPT
CARTRIDGE
2.5 MEG MEMORY
$1445.00

LOW USAGE
UNDER
40,000
COPIES

THE SUPER TONER CARTRIDGE

FOR SERIES II & III



FOR SERIES II & III

8000 PAGE YIELD

FEATURING THE GRAPHICS QUALITY LONG LIFE DRUM!

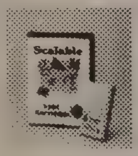
INTRODUCTION OFFER EXPIRES 8/31/92

$79.00

3SI TONER CARTRIDGE • $89.00

SATISFACTION GUARANTEE!

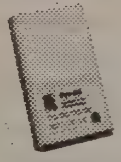
Plug n' Play Fonts for Fast, Easy Printin



TurboScalable Cartridge for HP III's

$249

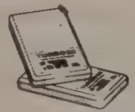
37 high qulaity scalable PCL-5 compatible fonts, seven full typefaces. Requires no additional printer memory. Drivers provided for all popular software, including Windows 3.1.



Pro65 Cartridge for *all* HP LaserJets

Versatility and economy. Works on all HP LaserJets. 65 fonts from 3.6 to 14 point. Supported by all popular word processing programs.

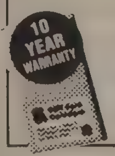
$138



Turbo25 Cartridge with 143 great fonts! **$168**

Economical alternative to Pacific Data's 25-in-One. Sizes from 3.6 to 30 point. Works on HP II & III series and compatible printers. Drivers for all popular software are included.

UDP manufactures font products for HP, Okidata, IBM, Epson, Packard-Bell and more. Ask your salesperson for information.



Laser Cartridge Network

CALL TODAY!

$49 Font Cartridge

What's the Catch?

The catch is simple. UDP overbuilt these HP compatibles and needs to reduce their inventory. You're the winner with satisfaction guaranteed and 10 year unlimited warranty!

C1, WP Plus. Equiv. to HP WordPerfect cartridge. For all WP programs. Proportional fonts to 24 point.

C2, MS Plus. Equiv. to HP Microsoft cartridge. For all WP programs. Proportional fonts to 14 point. For *all* LaserJet printers.

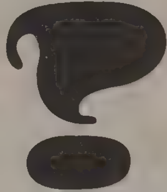
C3, Spreadsheets. Equiv. to HP Polished Worksheets cartridge. Fixed pitch fonts from 3.6 to 16 point in portrait and landscape. For LaserJet II & III series and compatible printers.

C4, Presentations Plus. Equiv. to HP Persuasive Presentations cartridge. Distinctive fonts to 24 point for enhancing presentations. For LaserJet II & III series and compatible printers.

LASER CARTRIDGE NETWORK

2120 E. HOWELL AVE., #409 92806
(714) 634-1889 • (800) 487-1486

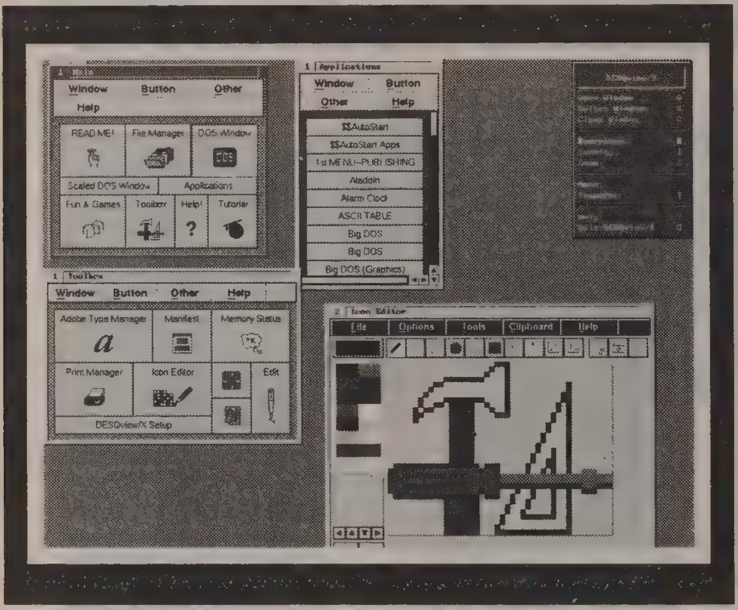
What's New In DESQview/X?



Quarterdeck's enhanced Graphic-Based Multitasker is a revolutionary product for connecting MS-DOS and UNIX X Windows Platforms.Single-platform users may like it, too.

BY LENNY BAILES

DESQview/X is a new wrinkle on Quarterdeck'sstandard multitasking workhorse. Add a graphic interface and remote network features to the DESQview multitasking engine, and the result is a formidible package. DESQview/X can link MS-DOS and UNIX computing platforms, allowing DOS applications, Microsoft Windows, and UNIX X Windows applications to appear side-by-side on either a DOS - or a UNIX-based machine.



X Windows is a graphic standard that has traditionally permitted UNIX-based platforms to run programs in a mouse-driven, multi-windowed environment. DESQview/X incorporates Quarterdeck's version of the X Server/X Client protocol. Ordinary MS-DOS and Windows applications are converted by DESQview/X into "X Client" applications. (An "X Server" is an X Windows system program that controls a computer's display screen. An X Client is an application—e.g., word processor, drawing program, database—that communicates with a computer through an X Server.)

DOS applications converted into X Clients can run remotely on other DESQview/X PCs, or be accessed on DEC and Sun workstations equipped with a suitable X Windows front end. Conversely, UNIX-based X Windows programs can be transmitted remotely to 80386/80486 PCs running MS-DOS and DESQview/X. (Quarterdeck is also working on an 80286 version of DESQview/X that has not yet been released.)

The combination of the X Window protocol and multitasking engine on MS-DOS machines revolutionizes the options available to managers of mixed DOS-UNIX networks. Formerly, to run DOS programs on a UNIX machine, you needed an expensive emulation program or a "dumb terminal" connection to the PC. Using the PC as an "X terminal" completely monopolized the DOS-based machine, preventing it from doing any other work.

DESQview/X changes all that by allowing both the client and server machines to multitask and remain operable. Even simple file link and transfer utilities between UNIX and DOS machines formerly cost upward of $700. DESQview/X allows convenient file sharing over Novell (IPX), NETBIOS, and TCP/IP-based networks for a third of that.

Remote multitasking can be a great boon for networked sites with one or two powerful servers and a bunch of lower-powered workstations. The machines with less memory and storage space can access and run programs from the higher-powered machines. A 16MHz 386SX can zip through a spreadsheet recalculation or access a wire-frame design program located on an 80486 PC or Sun station. The programs appear side-by-side on the screen with local applications. The lower-powered machine may have only 4MB of RAM and 40MB of hard disk space, but it can effectively borrow the higher-speed CPU and greater storage space of another machine.

ABOUT THE GUI

The default DESQview/X interface takes its look and feel from X Windows front ends like Motif and Open Look. Users of Geoworks Ensemble may also be familiar with this visually attractive and streamlined approach to graphic interfaces. The DVX Application Manager and File Manager permit icon-based program launching and tree-structured file management much like Microsoft Windows. Alternatively, you have access to the traditional pop-up text menu familiar to users of classic DESQview.

DVX's Application Manager can be customized to set up a series of group windows with individual application buttons. Over 100 icons are included in the package, along with an icon editor that lets you roll your own. Buttons can be configured as text-only, icons-plus-text, or icon-only. The Application Manager can duplicate the traditional pop-up text menu, or contain only the items you plan to use frequently. Groups may be configured to spawn nested group and program windows.

Figure 1 shows three different ways to access programs under DESQview/X. You can click on icons, open up a special program list, or use the standard pop-up menu. (The DVX icon editor is also shown in Figure 1.)

The DVX File Manager is a tree-based shell similar to the File Manager in Microsoft Windows. DESQview/X supports file transfers using the FTP (File Transport Protocol). FTP allows files to be exchanged between systems with different operating systems and different hierarchical file structures. (Because FTP supports multiple operating systems, the File Manager is somewhat limited in bells and whistles. There are no copy and format dis-

DESQview/Xallowsconvenientfilesharingover Novell,NETBIOS,andTCP/IP-basednetworksfo athirdofthecost.

© 1992 by Mike Markowitz. You can send email to Mike Markowitz on America Online (MOUSKOWITZ) or the Internet (mmarkowi-@pepvax.pepperdine.edu). Or fax (310)983-1474.

"THE ULTIMATE WINDOWS PC"

— Windows Magazine, May 92

MONA EISA

$2799

- USA Built MICRONICS 486 EISA/50 MHz
- 212 MB Connor #3200F SCSI HDrive; 16ms
- UltraStar #24F EISA BusMaster SCSI CCtlr
- 4096K SIMM, 60ns; Up to 64 MB Onboard
- 256K CPU Cache; Toshiba
- 1.2 MB & 1.44 MB Teac Floppy Drives
- Dual Serial/Parallel I/O Adapter
- Northgate OMNIKEY ULTRA Keyboard
- Options: Any Hard Drive; Any Video Call for Your Special Configuration
- One Year Warranty - Parts & Labor

"*The Ultimate Windows PC Motherboard!"
(Windows Magazine, May 92, Page 93)

SON OF BEAST

$2199

- USA Built 486/33 MICRONICS System
- 205 MB Connor #3204 Hard Drive
- 4MB SIMM Memory (70ns)
- 1.2 MB & 1.44 MB TEAC Floppy Drives
- 1 MB Speedstar & Monitor/1024 res
- WD Hi-Speed Controller
- Dual Serial/Parallel Adapter
- Northgate Omnikey ULTRA Keyboard
- One Year Warranty - Parts & Labor
- Options: EISA/50 MHz: Any Drive/Video

THE BEAST

$1299

- USA Built 486SX MICRONICS System
- 185 MB FUJITSU HARD DRIVE, 16ms
- 1MB SIMM Memory (70ns)
- 1.2 MB TEAC Floppy Drive
- WD Hi-Speed IDE Controller
- Dual Serial/Parallel Adapter
- Northgate ULTRA Keyboard
- One Year Warranty - Parts & Labor
- Options: Any Drive, Any Video

UPGRADEABLE

FIFTIES

USA-Built MICRONICS
486/50DX2 Motherboard $899

USA-Built MICRONICS
486/50GCP Motherboard $1149

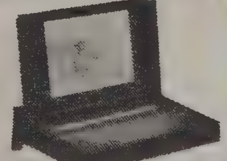
USA-Built MICRONICS
486/50EISA Motherboard $1399

WE STOCK ALL MICRONICS BOARDS, MEMORY & PERIPHERALS... CALL US FOR BEST PRICING

***The Intel Logo is a trademark of the Intel Corporation.**

MICRONICS MPACT NOTEBOOK

$1299



- MICRONICS 386sx/20MHz Notebook Computer
- 60MB Conner Hard Drive; 16ms
- 640x480 LCD VGA Display/32 Shade
- Memory to 5MB
- 1.44MB Floppy Drive
- Parallel/Serial Adapter
- 2-Hour Battery with QuickCharge
- Black Unit with PaperWhite Display
- Designer Carrying Case
- Extremely Rugged, Durable Construction

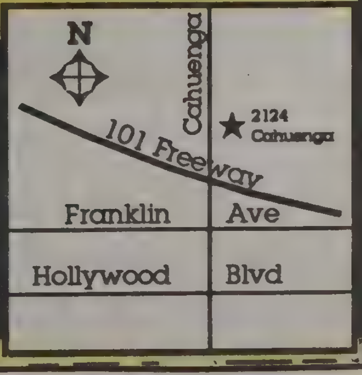
AUTHORIZED MICRONICS DISTRIBUTORS

3-6 COMPUTERS

2124 Cahuenga Blvd. · Hollywood, CA 90068
(213) 466-3636 · FAX: (213) 466-3693

OPEN EVENINGS

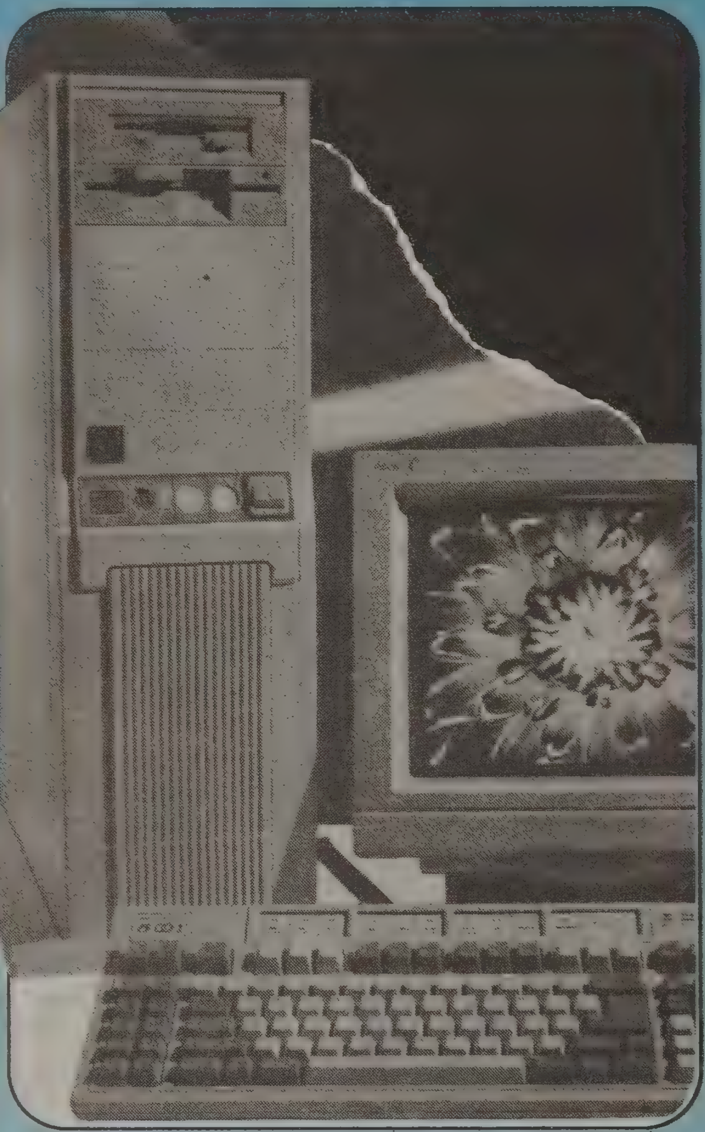
7th Year; Member Better Business Bureau



SA COMPUTERS

NETWORK INSTALLATION
IN-HOUSE SOFTWARE DEVELOPMENT SPECIALISTS

MONTHLY SPECIALS



SPECIAL OFFER

WITH ANY SYSTEM PURCHASE

THE NEW MS WINDOWS 3.1
+ MS-DOS 5.0
+ HI-RESOLUTION MOUSE

ONLY $89!

FREE Hands On Computer Training
Limited Availability,
Please Call

Two Year Labor Warranty
One Year Parts Warranty
15 Days Money Back Guarantee

386 SX-25 MHz

- 386SX-25 MHz Motherboard
- AMI Bios
- 2 MB RAM
- 1.2 & 1.44 Floppy Drives
- 40 MB Hard Disk
- 2S/1P/1G
- VGA Monitor
- VGA Card
- Mini Tower Case
- 101 Enhanced Keyboard
- Internal Clock/Calendar

$899

386-33 MHz

- 386-33 MHz Motherboard w/64K Cache, AMI Bios
- 4 MB RAM
- 1.2 & 1.44 Floppy Drives
- 120 MB Hard Disk
- 2S/1P/1G
- 14″ Super VGA Monitor, .28, Non-Interlaced
- Super VGA (1 MB) Card
- Mini Tower Case
- 101 Enhanced Keyboard
- Internal Clock/Calendar

$1275

486-33 MHz

- 486-33 MHz Motherboard w/256K Cache, AMI Bios
- 4 MB RAM
- 1.2 & 1.44 Floppy Drives
- 120 MB Hard Disk
- 2S/1P/1G
- 14″ Super VGA Monitor, .28, Non-Interlaced
- Super VGA (1 MB) Card
- Mini Tower Case w/230W PS
- 101 Enhanced Keyboard

$1625

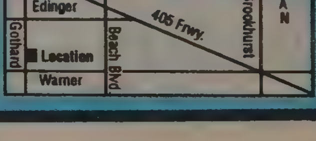
SA COMPUTERS
16882 Gothard St., Unit D
Huntington Beach, CA 92647

TERMS AND CONDITIONS: All SA Computer brand products carry a one year limited warranty, other brand products are warranted by manufacturers. A 15 day money back guarantee for all products in original packaging. Prices, specifications and availability subject to change without any notice.

VISA MasterCard

HOURS:
MON.-FRI. 10-6
SAT. 11-5

TEL: (714) 375-7433
FAX: (714) 375-7434



kette features, and you can't start programs by double-clicking, but you can view files in either ASCII or hexadecimal format.)

DESQview/X makes it easy to connect to other machines on a network. You don't have to load server software or be logged into a server. DESQview/X recognizes other DESQview/X machines as long as the low-level network transport software is active. During setup, you specify the network type, choose a host name and provide a list of users. Several degrees of security can be implemented. With or without a password, users may be granted file access privileges, the right to run remote programs on the host, or the ability to send programs to a specified host. (You can tell a program at your end to pop up on someone else's machine, or request a remote program to display on your own screen.)

DESQview/X Tips And Tricks

1. Remember, you don't need to load your server software on PCs that connect to each other through DESQview/X. Configuring the machines as "workstations only" may salvage an additional 30–50K of conventional memory for application windows.

2. You can make DESQview/X start up applications automatically by entering their names on the line marked "Client" in the DVX.CFG file.

3. If the default font looks too small at 1024x768, you can tell DVX to use a larger one. Run the Advanced Setup program, and under Window Manager, Text Font, try entering pc8x16.snf instead of the pre-configured pc6x13.snf.

For this article, I tested DV-X on two MS-DOS machines connected by LANtastic, a NETBIOS-based network. Since I didn't have to load the server software, an annoying conflict with classic DESQview on LANtastic servers was neatly eliminated.

Figure 2 shows DESQview/X multitasking on a 386 with the minimum of 4MB of required RAM. The memory on this 386 is quickly exhausted by running Microsoft Windows locally, but you can see another copy of Windows plus several more applications up and running on the screen. The additional programs run remotely from a linked 486 machine with 10MB of RAM. (Note that you can run multiple copies of Windows, as long as each originates on a different host.)

DESQview/X can run DOS text apps, Windows apps, or X Windows apps remotely. Graphic-based DOS applications like Harvard Graphics or Xerox's GEM Ventura Publisher don't run across the network. You can use them locally in full-screen windows, minus the benefits of the DVX clipboard and macro facility. The DESQview/X Mark and Transfer feature has been upgraded to provide "smart pasting" of numerical data into spreadsheets. The clipboard can also be used to transfer text into graphic X Windows applications. (At present, no support exists for cutting and pasting bitmapped or vector graphics.)

Because DESQview/X includes a bundled version of Adobe's Type Manager, you can open "scalable" windows for DOS text applications. No matter how you resize the window, you see an appropriately adjusted eighty-column by twenty-five-row text display. This feature is somewhat more flexible than the three or four "fixed-font" sizes offered in Microsoft Windows. X Windows applications that are aware of Type Manager can use the Adobe fonts for printing as well as screen display. DESQview/X also includes a print manager/spooler to regulate output from DOS and X Windows applications.

If you already have a version of classic DESQview on your machine, DVX detects it during setup and transfers your program menu configuration to the newer product. DESQview/X is bundled with version 6.03 of QEMM, Quarterdeck's 386 memory manager. (QEMM must be installed for DESQview/X to work correctly.) Minimum hardware requirements are an 80386SX or higher PC with EGA or VGA display, a minimum of 10MB of hard disk space, and 4MB of RAM. (One good yardstick for memory is to add about 2MB to whatever total satisfies you with the text-based DESQview—6MB is a good practical minimum.)

HOW DOES IT WORK?

Performance of applications under DVX is not quite as brisk as with classic DESQview, but DOS apps run faster than they would under Windows 3.1. Users have a choice of running Microsoft Windows under DVX as a full-screen DOS application or as an X Client in a small window. There is no performance deterioration for full-screen programs, but you'll find a noticeable slowdown in video running Windows as an X Client. DVX supports SuperVGA video modes 800x600x16 colors, 800x600x256 colors and 1024x768x256 colors with most standard VGA cards. (1MB of onboard video RAM is required to run at 1024x768x256.)

Version 1.02 of DVX still has some problems with Windows 3.1 that need to be worked out. If your available memory drops below a certain threshold while Windows is running as an X Client, its Program Manager may crash, reporting a general protection fault. Word for Windows, v. 2 behaves in a similar fashion. These problems are not evident with the older Windows 3.0, and Quarterdeck is working on a fix. (You can run Windows 3.1 as a local full-screen application without mishap.)

The DESQview/X Application Manager is a pleasure to use. It is attractive, flexible, and equipped with all the icons you need. The File Manager is adequate, but like most graphic-based shells, forces you to use the mouse too much and click on too many menus to accomplish routine command-line functions. I would have preferred File Manager to be text-based, rather than graphic-based, so that the scalable font feature could fit it into a convenient small-screen window.

SHOULD YOU UPGRADE FROM CLASSIC DESQVIEW?

Quarterdeck does not intend DESQview/X to

A 16MHz 386SX can zip through a spreadsheet recalculation or access a wire-frame design program located on an 80486 PC or Sun station.

continued on page 107

ORANGE COUNTY

We Are Turning ORANGE COUNTY Upside Down !!!
With Our LOW PRICES & SPECIAL OFFERS

386SX-25 MHz System

- 386SX-25 Mother Board
- 2Mb RAM (70ns)
- 1.2 & 1.44 Floppy Drive (TEAC)
- **120Mb Hard Drive (15ms)**
- AT IDE Controller
- 2 Serial, 1 Parallel, 1 Game
- SVGA Adapter w/256K
- 14" SVGA Monitor .39
- Mini Tower Case w/220W
- 101 Enhanced Keyboard
- Hi-Resolution 3 Button Mouse

$1025 OR $41/MO.

486SX-20 MHz System
*****UPGRADABLE*****

- 486SX-20MHz 64K Mother Board
- 4Mb RAM (70ns)
- 1.2 & 1.44 Floppy Drive (TEAC)
- **120Mb Hard Drive (15ms)**
- AT IDE Controller
- 2 Serial, 1 Parallel, 1 Game
- SVGA Adapter w/1Mb
- 14" GoldStar SVGA Monitor .28
- Mini Tower Case w/220W
- 101 Enhanced Keyboard
- Hi-Resolution 3 Button Mouse

$1330 OR $51/MO.

486DX-33 MHz System

- 486DX-33 256K Mother Board
- 4Mb RAM (70ns)
- 1.2 & 1.44 Floppy Drive (TEAC)
- **120Mb Hard Drive (15ms)**
- AT IDE Controller
- 2 Serial, 1 Parallel, 1 Game
- SVGA Adapter w/1Mb
- 14" SVGA Non-Interlaced Monitor
- Tower Case w/230W
- 101 Enhanced Keyboard
- Hi-Resolution 3 Button Mouse

$1540 OR $62/MO.

486DX-50 MHz System

- 486DX-50 256K Mother Board
- 4Mb RAM (70ns)
- 1.2 & 1.44 Floppy Drive (TEAC)
- **120Mb Hard Drive (15ms)**
- AT IDE Controller
- 2 Serial, 1 Parallel, 1 Game
- SVGA Adapter w/1Mb
- 14" SVGA Non-Interlaced Monitor
- Tower Case w/250W
- 101 Enhanced Keyboard
- Hi-Resolution 3 Button Mouse

$1795 OR $72/MO.

386DX-33 MHz System
***** UPGRADABLE *****

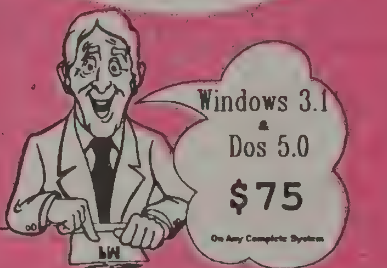
- 386DX-33MHz Mother Board
- 4Mb RAM 64K Cache
- 1.2 & 1.44 Floppy Drive
- **120Mb Hard Drive (15ms)**
- AT IDE Controller
- 2 Serial, 1 Parallel, 1 Game
- SVGA Adapter w/1Mb
- 14" GoldStar SVGA Monitor .28
- Mini Tower Case w/220W
- 101 Enhanced Keyboard
- Hi-Resolution 3 Button Mouse

$1250 OR $48/MO.

NEW !!!

386DX-33
- Fast, Low Cost
- Upgradable to 486 Series
- No Module, No Hassle
- Just Replace CPU

It's That Simple !



486DX-50 EISA System

- 486DX-50 EISA Mother Board
- 4Mb RAM (70ns)
- 1.2 & 1.44 Floppy Drive (TEAC)
- **120Mb Hard Drive (15ms)**
- AT IDE Controller
- 2 Serial, 1 Parallel, 1 Game
- SVGA Adapter w/1Mb
- 14" SVGA Non-Interlaced Monitor
- Tower Case w/250W
- 101 Enhanced Keyboard
- Hi-Resolution 3 Button Mouse

$2445 OR $98/MO.

BARE BONE FOR UPGRADE

- ☐ Mother Board W/ Microprocessor
- ☐ 1Mb RAM Installed
- ☐ 1.2 or 1.44 Floppy Drive
- ☐ AT IDE Controller
- ☐ 2 Serial, 1 Parallel, 1 Game
- ☐ Mini Tower Case w/220W
- ☐ 101 Enhanced Keyboard
- ☐ All Document Included

All Systems Are Tested With

Windows 3.1
SCO UNIX S.V
Novell 3.11

Special Business Networking Package

(1) Non-Dedicated Server

- 386DX-33MHz/64K Cache
- 4Mb RAM Installed (Expandable to 32Mb)
- 120Mb Hard Drive
- 1.2 Mb and 1.44 Mb Floppy
- IDE 1:1 Dual FD/HD Controller
- AT I/O (2Serials, Parallel, Game) Ports
- 16 Bit Ethernet Adapter
- 14" SVGA Monitor w/1Mb Adapter
- Tower Case w/230W Power Supply
- 101 Enhanced Keyboard
- DOS 5.0 Installed
- NOVELL Operating System Installed

(2) Workstations

286-12MHz
1Mb RAM
1.44Mb Floppy Drive
14" Monochrome Monitor w/Video Adapter
AT I/O (2Serials, Parallel, Game) Ports
16 Bit Ethernet Adapter
Mini Tower Case w/200W Power Supply
101 Enhanced Key Board

$2829 or $109/MO.

386SX-16	$290
386SX-25	$310
386DX-25	$390
386DX-33 64K	$440
486SX-20	$475

486DX-33 64K	$709
486DX-33 256K	$759
486DX-50 256K	$995
486DX-33 EISA	$1379
486DX-50 EISA	$1689

Monitor & Card

14" Flat Screen Amber	$109
Packard Bell 640x480 VGA	$289
Samsung 640x480 VGA	$289
Aamazing1024x768 SVGA .28	$359
Packard Bell SVGA .39	$299
GoldStar 1024x768 SVGA .28	$349
Shamrock 1024x768 SVGA .28	$339
Shamrock SVGA Non-Int .28	$369
Relysis 9514 1024x768 SVGA	$389
ViewSonic 5E 14" SVGA	$519
ViewSonic 6E 1024x768 SVGA .28 Non-Interlaced	$419
ViewSonic 7 17" SVGA	$1165
NEC 3FG 15" .28 MultiScan	$665
NEC 4FG 15" .28 MultiScan	$799
KFC 17" 1280x1024	$999
Sony 1304 14" .25	$645

Hard Drives

TEAC 1.2 FDD	$61
TEAC 1.44 FDD	$58
Seagate ST-351A IDE 40Mb	$199
Western Digital IDE 40Mb	$199
Conner CP3004 IDE 40Mb	$199
Maxtor 7080A IDE 80Mb	$289
WD 280 IDE 80Mb	$259
WD 2120 IDE 125Mb	$359
Maxtor 7120A IDE 130Mb	$349
Conner CP30104 IDE 120Mb	$329
Conner CP30174 IDE 170Mb	$399
Conner 3204F IDE 200Mb	$509
Maxtor LXT-213A IDE 213Mb	$519
Maxtor LXT-4380S 337Mb	$986
Maxtor LXT-8760S 675Mb	$1345
Quantum LPS52T 52Mb	$255
Quantum LPS84AT 80Mb	$309

New Afordable PC Sound

Media Music 2.0

Adlib Compatible Sound Board
Building Power Amplifier Speaker
Pair of High Quality Speakers
9 Simultaneous Melody Sound
11-Voice FM Music
WINDOWS Software FM Player
DOS Software CD Studio - Karaoke

$89

System Board

386SX/16MHz	$125
386SX/25MHz	$139
386DX/25MHz w/CPU	$219
386DX/33MHz w/CPU 64K	$279
386DX/40MHz w/CPU 64K	$289
486DX/33MHz w/CPU 64K	$539
486DX/50MHz w/CPU 64K	$829
VEGA 486DX/33 MHz 64K	$650
VEGA 486DX/33 EISA 256K	$1049
VEGA 486DX/50 256K	$925
VEGA 486DX/50 EISA 256K	$1329

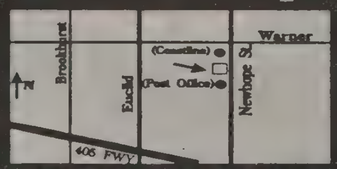
Miscellaneous

Dos 5.0, Window 3.1, Mouse	$99
101 Enhanced Keytronic KB	$39*
Mini Vertical Case w/200W PS	$65
Mid Tower Case w/230W PS	$99

Printers/Memory

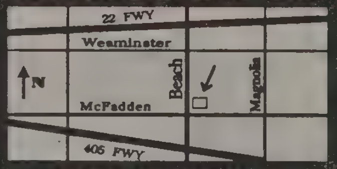
Citizen 200GX	$ 179
Citizen 130GSX	$ 259
Citizen 140GSX	$ 279
Citizen 140GSX+Plus	$ 319
Citizen 145GSX	$ 419
HP Desk Jet 500 Printer	$ 399
HP Laserjet IIP w/Toner	$ 799
HP Laserjet IIIP w/Toner	$ 1029
HP Laserjet III w/Toner	$1445
Simm 1Mbx9-80/70ns	$35/37
Simm 256Kx9-80/70ns	$14/15
Simm 4Mbx9-80/70ns	$160
Sipp 1Mbx9-80ns	$45
DRAM 1Mbx9-80	$4.6
DRAM 44256-80ns	$4.5
AST, Toshiba, NEC, Compaq, IBM.....	

CD Group



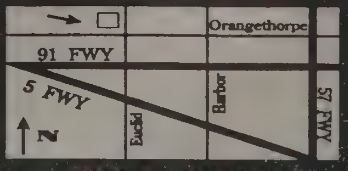
17195 Newhope St #109
Fountain Valley, CA 92708
PH: (714) 434-6900 FAX: (714) 434-9116

Microsel



15368 Beach Blvd
Westminster, CA 92683
PH: (714) 892-5020 FAX: (714) 892-7901

B & N Computer



707 S. Euclid
Fullerton, CA 92632
PH: (714)871-5038 FAX: (714)871-6413

WE ACCEPT GOVERNMENT, UNIVERSITY, CORP PO

FINANCE AVAILABLE
* Base on AOC only

Term: C.O.D Cash, Company & University PO's Approval.
All Return Must Have A RMA Number. Price Subject to Change
Without Notice. Visa & Master Charge Accepted.
1Year Part & Labor Warranty

M-F 9-7 SAT 10-5

Your First Computer

So You Want To Be A Programmer

BY MIKE MARKOWITZ

Just as anyone who owns a pencil is, at least potentially, a writer, anyone who owns a computer is potentially a programmer. Software is created by people.

The applications that help us to get our work done, the games that amuse us, and the operating system software that makes it all possible were all written by humans who belong to the same species as The Rest of Us. If you have ever been awestruck or delighted by something you saw on a computer screen, you must have thought, however secretly and fleetingly, "I wish I could do that..."

The Dictionary of Occupational Titles (1977) offers a quaint description of what a "programer" (sic) does:

> Selects symbols from coding system peculiar to make or model of digital computer and codes successive steps of completed program for conversion to machine instructions to process data or control industrial processes; Reads and interprets sequence of alphabetic, numeric or special characters from handbook or memory for each program step to translate into machine language or pseudo (symbolic) code that can be converted by computer processor into machine instructions. Records symbols on worksheet for transfer to punchcards or machine input tape ...

Here is a more contemporary definition:

> **real programmer**: n. A particular sub-variety of hacker: one posessed of a flippant attitude toward complexity that is arrogant even when justified by experience. Real Programmers never use comments or write documentation: "If it was hard to write," says the Real Programmer, "it should be hard to understand." Real Programmers can make machines do things that were never in their spec sheets; in fact, they are seldom really happy unless doing so. Real Programmers live on junk food and coffee, hang line-printer art on their walls, and terrify other programmers —because someday, somebody else might have to try to understand their code in order to change it. Their successors generally consider it a {Good Thing} that there aren't many Real Programmers around any more.

HOW CODE BECOMES SOFTWARE

Programmers use computer languages. Like writers and speakers of "natural" languages, programmers strive for an elusive quality called elegance.

Elegant code is hard to define but easy for programmers to recognize; it is simple but powerful; it does more with less. The opposite of elegant code is spaghetti code, a tangle of patched-together statements that gets the job done, but in a way that nobody else can understand or reconstruct.

Unlike the natural languages in which we speak, read, write, and think, most computer languages are utterly intolerant of ambiguity. A programmer can be slovenly in matters of diet, hygiene, and attire, but he or she must be fanatically meticulous about spelling, syntax, indenting, and parentheses. Actually, the software tools that programmers use to compose and edit their code take care of some of these details automatically. Programmers hit wrong keys, just as musicians hit wrong notes, but in both cases, the goal of the performer is "zero defects."

Just as anyone who owns a pencil is, at least potentially, a writer, anyone who owns a computer is potentially a programmer.

Natural languages evolved in order to express feelings and enable humans to coordinate their social behavior in creative and flexible ways. This took tens of thousands of years. Computer languages evolved in order to allocate memory addresses, move data bits from one register to another, and control millions of simple, electronic events without requiring the programmer to worry about what is actually happening inside the circuitry. The entire evolution of computer languages has taken less than fifty years; but computers that an ordinary person could buy, take home, and experiment with have only been around for less than fifteen years. Be patient, child. Things are gonna get easier.

The fundamental and ancestral computer language is binary or "machine language"; strings of zeros and ones that a computer interprets as instructions.

This is unwieldy for humans and so machine language begat assembly language, in which easily remembered three-letter codes like JMP and MOV represent instructions and numbers are expressed in compact hexadecimal form (base 16).

Each type of computer has its own dialect of assembly language, and it is often the best choice when speed and compactness are essential. The software tool that programmers use to write assembly language code is usually called a Macro Assembler.

Since assembly language can be tedious to use, "high-level languages" were created, starting with FORTRAN and COBOL in the 1950s. In high level languages a single word or command can represent an entire structure or sequence of machine-level events. As computers became increasingly important in higher education, languages, notably BASIC and Pascal, were developed to make it easier to teach programming. A version of BASIC is often included with the operating system when you buy an IBM-compatible, even though no one ever actually uses it any more. At present, the computer language most widely used for developing personal computer software is C (that's right, just the capital letter "C"), which was originally developed at Bell Laboratories as part of the UNIX operating system. The idea behind the development of C was to make it easier to "port" or convert programs written on one kind of computer so that they could be run on another kind of computer. The software tool

continued on page 110

RESOURCES:

Microsoft Press
One Microsoft Way
Redmond, WA
98052-6399

Prentice Hall Computer Publishing
P.O. Box 90
Carmel, IN 46032
1-800-428-5331

Apple Programmers and Developers Association (APDA)
20525 Mariani Ave.
Cupertino, CA 95014
1-800-282APDA

Borland International
1800 Green Hills Rd.
Scotts Valley, CA
95067
408-438-8400

Symantec
10201 Torre Ave.
Cupertino, CA 95014
408-253-9600

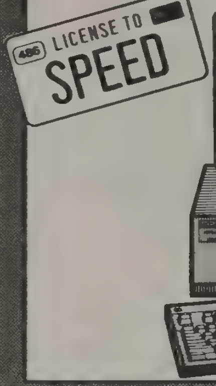
GEnie
1-800638-9636

CompuServe
1-800-848-8990

Copyright © 1992 by Mike Markowitz. All rights reserved.

Superstore Prices w

You're licensed to speed with HP's new 50 MHz i486 DX2 PC and a FREE 66 MHz upgrade.



The all new HP Vectra 486/50U PC

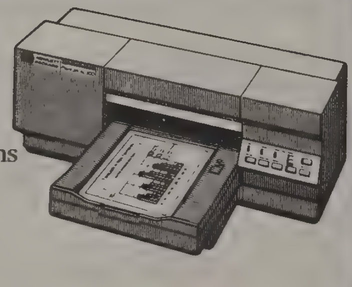
- Based on the new 50 MHz i486 DX2
- A FREE 66 MHz upgrade kit from HP when volume-shipments are available from Intel
- Ideal for CAD and power MS-Windows users
- World's fastest integrated PC Video
- Unique upgrade makes processor upgrade easy & protects your investment
- Lots of room for expansion

$2779

HEWLETT PACKARD
Authorized Dealer

HP PaintJet XL-300

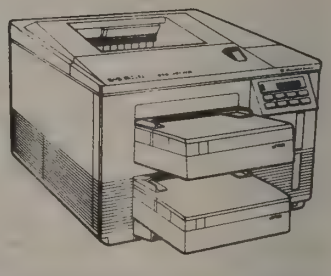
$2209



For IBM compatibles & Macintosh systems
* 300-dpi, Laser quality output
* 2MB RAM, expandable to 18MB
* PCL5 & optional Adobe PostScript Level 2
* 13 Scalable & 14 Bitmapped fonts

HP LaserJet IIIsi

IN STOCK

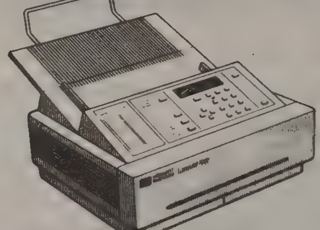


* Excellent Network Printer
* 17ppm Business Speed Printing
* 50,000 Pages Per Month
* RET & Microfine Toner

FREE $190 ACCESSORIES KIT!
With HP LaserJet Fax Purchase

HP LaserJet Fax

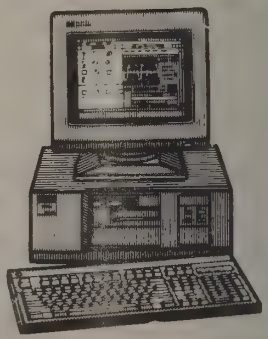
$875



* Plain Paper Fax
* Fast 300dpi Printing
* Easy PC Faxing
* HP Quality & Reliability

HP Vectra 386s/20

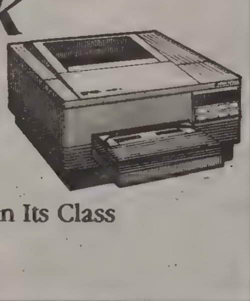
$1329



* Best-in-class 20 MHz Intel 386SX performance
* Excellent expandability with four mass storage shelves and five expansion slots
* 2MB RAM, 1.2MB FDD SVGA Adapter

HP LaserJet III

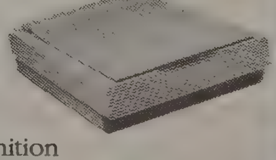
IN STOCK



* Highest Print Quality in Its Class
* PCL5 w/ Ret
* 8ppm Business Speed

HP ScanJet IIc Scanner

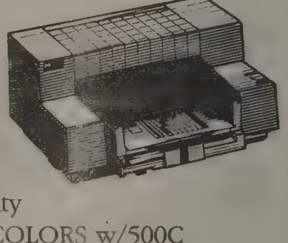
$1359



* 24-bit Color Recognition
* 256 Greyscale
* 400-dpi Optical Resolution
* 800-dpi Enhanced Resolution
* Single-pass Color Scanning

HP DeskJet 500 & 500C

HP DeskJet 500
$375
HP DeskJet 500C
$609



* 300dpi Print Quality
* Up to 16 million COLORS w/500C
* 3 Year Warranty

PC SYSTEMS DESIGN CORPORATION

All Stores Open Mon-Fri 9-6pm, Sat 9:30-5pm; Financing Available

ith Superior Service

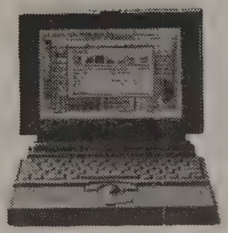
Since 1983

Why Wait to Own a Macintosh?

Authorized Dealer
Authorized Service

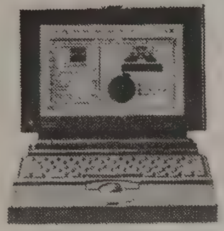
Macintosh LC II

Affordable color with a powerful 030 microprocessor



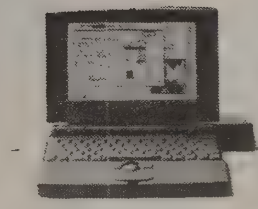
Macintosh PowerBook 170

The most powerful of the new PowerBook computers



Macintosh PowerBook 140

A complete Macintosh system that goes wherever you do



Macintosh PowerBook 100

The affordable way to take your Macintosh with you

Macintosh Classic II

A fast, powerful, affordable Macintosh computer

Apple Macintosh
LCII
$1785

Authorized Dealer
Authorized Service

- * 4MB with 40MB HD
- * Sony 14" Color Monitor
- * Most affordable color
- * System 7 capable
- * Apple IIe compatible

Apple Macintosh
IIsi
$1845

Authorized Dealer
Authorized Service

- * 3MB with 40MB HD
- * Flexible monitor support built-in
- * Expandable
- * System 7 capable
- * Small footprint

Monitor optional

* No payments or finance charges until after your third billing. Subject to credit approval by Monogram Credit Card Bank of Georgia. After your third billing, payments are required and FINANCE CHARGES are assessed at a rate of up to 20.4% ANNUAL PERCENTAGE RATE with up to a $.50 minimum FINANCE CHARGE. Purchase must be made with the Apple Consumer Credit Card to receive finance offer. ** Qualifying Macintosh computers include any configuration of the Macintosh Classic II, PowerBook 100 or 140.

Apple, the Apple logo, AppleCare and Macintosh are registered trademarks of Apple Computer, Inc. Classic is a registered trademark licensed to Apple Computer, Inc. Microsoft is a registered trademark of Microsoft Corporation. ClarisWorks is a trademark of Claris Corporation. GreatWorks is a trademark of Symantec Corporation. Offer valid only in U.S. through authorized Apple Resellers.

PASADENA
240 S. Lake Avenue
(818) 792-1391

TORRANCE
22533 Hawthorne Blvd.
(213) 373-0832

BREA
2860 E. Imperial Highway
(714) 996-0690

COSTA MESA
3189-A Airway Avenue
(714) 668-9273

486 - 50 MHz CAD Station

8 MB RAM
256 KB Cache
1.2 & 1.44 MB Floppy Drive
2S / 1P / 1G
210 MB IDE Hard Drive
Enhanced Key Board
Full Size Vertical Case
Stealth VRAM SVGA
MAG 15" N-I Monitor
(PC Mag. Editor's Choice)
Serial Mouse

$2790

486 - 33 MHz Local Bus

4 MB RAM
256 KB Cache
1.2 & 1.44 MB Floppy Drive
2S / 1P / 1G
120 MB IDE Hard Drive
Enhanced Key Board
Full Size Vertical Case
32 Bit Local Bus S-3 VGA
MAG 15" N-I Monitor
(PC Mag. Editor's Choice)
Serial Mouse

$2200

486-33 MHz CAD Station

4 MB RAM
256 KB Cache
1.2 &1.44 MB Floppy Drive
2S/1P/1G
120 MB IDE Hard Drive
Enhanced Key Board
Medium Size Vertical Case
SVGA Card (1MB)
SVGA N-I Monitor
Serial Mouse

$1585

386-40 MHz Super VGA

4MB RAM
128 KB Cache
1.2 &1.44 MB Floppy Drive
2S/1P/1G
120 MB IDE Hard Drive
Enhanced Key Board
Mini Vert. or Desktop Case
SVGA Card (1MB)
SVGA 1024 x 768 Monitor
Serial Mouse

$1249

386-33 MHz Super VGA

4 MB RAM
128 KB Cache
1.2 &1.44 MB Floppy Drive
2S/ 1P/1G
120 MB IDE Hard Drive
Enhanced Key Board
Mini Vert. or Desktop Case
SVGA Card (1MB)
SVGA 1024 x 768 Monitor
Serial Mouse

$1219

386-25 MHz Super VGA

2 MB RAM
1.2 &1.44 MB Floppy Drive
2S/1P/1G
80 MB IDE Hard Drive
Enhanced Key Board
Mini Vertical Case
SVGA Card (512KB)
SVGA 1024 x 768 Monitor
Serial Mouse

$985

MISC.

MAG MX15F Monitor (15" - 0.28mm Dot Pitch)	$605
MAG MX17F Monitor (17" - 0.28mm Dot Pitch - 1280x1024)	$1240
NEC 4FG Monitor (15" - 0.26mm Dot Pitch)	$750
IDEK 5217 Monitor (17" - 0.28mm Dot Pitch)	$935
RainBow CM1448 Monitor (14" - 0.28mm Dot Pitch, Non-Interlaced)	$299
RainBow CM1402 Monitor (14" - 0.28mm Dot Pitch Interlaced)	$258
FAX/Modem (9600/2400 Baud)	$65
PRO SPECTRUM 16 Bit Stereo Sound Board	$215
ATI Graphic Ultra	$445
SpeedStar Hi-Color Super VGA Card (1 MB)	$160
SpeedStar Stealth Super VGA Card (1 MB)	$260
Sony 650S-G CD-ROM Drive	$325

386SX-25 MHz Super VGA

2MB RAM
1.2 &1.44 MB Floppy Drive
2S/1P/1G
40 MB IDE Hard Drive
Enhanced Key Board
Mini Vertical Case
SVGA Card (512 KB)
SVGA 1024 x 768 Monitor
Serial Mouse

$869

Small Business Network Package

Non-Dedicated File Server

80386-40 File Server
4 MB Ram
1.2 & 1.44 MB Floppy Drive
2S/1P/1G
120 MB IDE Hard Drive
Enhanced Keyboard
Medium Vertical Case
MGP & 14" Monitor
16 Bit Ethernet Board

2 Netware Work-Stations

80386SX-25 Work Station
1 MB RAM
2S/1P/1G
Enhanced Keyboard
Mini Vertical Case
MGP & 14" Monitor
8 Bit Ethernet Board
Remote Boot PROM

NOVELL Networking Software

Netware Version 2.2 (5 Users)

$3599

486-50 MHz EISA

AIR 486-50 EISA Motherboard
(Made in USA)
8 MB RAM
256 KB Cache
1.2 & 1.44 MB Floppy Drive
2S/1P/1G
Maxtor 340 MB SCSI Hard Drive
Mylex EISA SCSI Cache Controller
(2 MB Cache RAM)
Vertical Case (300 W. P/S)
ATI Graphic Ultra
MAG MX15F 15" N-I Monitor
Focus 5001 Keyboard

$4850

NETWORK PRODUCTS

8 Bit Ethernet Card	$85
16 Bit Ethernet Card	$120
8 Bit Arcnet Card	$60
16 Bit Arcnet Card	$80
Arcnet Active Hub (8 Ports)	$125
NOVELL Netware V.2.2 (5 Users)	$505
NOVELL Netware V.2.2 (10 Users)	$1035
NOVELL Netware V.3.11 (10 Users)	$1350
NOVELL Netware V.3.11 (20 Users)	$1900
SCO UNIX Sys. V (Unlimited Users)	$1050
SCO Multiview Window Environment	$280

Our Satisfied Customer List

ADRAY Mart Inc.
CAL STATE Of POMONA
CAL STATE Of LONG BEACH
LOMA LINDA University Nuerology Department
USC Medical School

- Two Years Labor And One Year Parts Warranty
- System & Components All Setup For Your Convience
- Please Call For Price & Configuration not Listed
- We Accept Corporation, University And Government's Purchase Order
- Please Call For NOVELL Networking Products And Services

Computer Technology
A-1
1987 - 1992

9690 Telstar Ave. Suite 202
El Monte, CA 91731
Tel: (818) 575-2882 Fax: (818) 575-8058

SERVICE. SUPPORT. QUALITY. PRICE.

286-12MHz 0 Wait System
$379
20 MHz Add $19

386SX-16MHz 0 Wait System
$469
*20 MHz Add $19 *25 MHz Add $29

386DX-40MHz W/64K Cache
$599

SYSTEMS INCLUDE :

- 1MB Memory
- Deluxe Baby AT Case
- 220W P/S (115/230V)
- 2S/2P/1G Ports
- IDE FD/HD Controller
- 1.2MB or 1.44MB FD
- Hercules Comp. Graphic
- TTL Hi-Res. Monitor
- 101 Enh. Keyboard (Japan)
- Clock/Calendar W/B.B.U.
- Serial Mouse & Software
- Operational Manual

- ONE YEAR WARRANTY
- CUSTOMER SUPPORT
- FULLY IBM COMPATIBLE

386-33 MHz w/64KB Cache On Board EXP. To 256K

- 4MB RAM Installed
- 32MB Expandable
- Co-Processor Socket
- 220W (110/220V)P/S
- Deluxe Baby AT Case
- Clock.Calendar (Battery Bkup)
- 2 Serial/1 Parallel/1 Game
- Serial Mouse & Software
- 1.1 FD/HD Controller
- 1.2MB & 1.44MB Floppy (Japan)
- 64MB Hard Drive
- 101 Keyboard (Japan)
- Super VGA Card w/1MB
- Super VGA Color Monitor
- Operation Manual

* For 40 MHz System Add $39 (same config. as above)

SALE

$1199

MONTHLY SPECIALS

Super VGA Color Monitor	$239
VGA COlor Monitor	204
14" Flat Screen P/W Monitor	89
16 Bit Super VGA Card w/512K	54
16 Super VGA Card w/1MB	74
ATI Wonder (OEM) w/512K	99
2400 Int. Modem & Software	44
9600 S/R Fax & 2400 Modem	79
Serial Mouse & Software	19
Trackball Mouse & Software	39
LOGITECH Mouse & Software	49
FUJITSU Color LQ Printer	349

486-33 MHz w/256KB Cache RAM On Board EXP. To 1MB

- Deluxe Tower Case
- 4MB RAM Installed
- 32MB Expandable
- 250W (110/220V)P/S
- 487 Built-in
- 8K Cache Int.
- IDE FD/HD Controller
- 175MB Hard Drive
- 1.2MB Floppy Drive
- 1.44MB Floppy Drive
- Serial Mouse & Software
- 101 Keyboard (Japan)
- CMOS Clock Calendar
- Super VGA Color Monitor
- 1024x768 w/1MB Super VGA Card
- 2S/1P/1G Port
- Operation Manual

* For DX2/50 MHz Add $199 (same config. as above).

SALE

$1699

SYSTEM OPTIONS

14" Flat Screen/TTl: Analog	add $29/89
Color VGA/Super Color VGA	add $169/229
Deluxe Mini/Medium Tower Case	add $9/39
Deluxe Tower Case	add $59
Hard Drives/Floppy Drives	Call

QUANTITY DISCOUNTS

8 Bit Arcnet Card	$39
16 Bit Arcnet Card	59
4 Port Passive Hub	9
8 Port Active Hub	99
MGP	10
IDE/FD/HD Cont. & Cables	10
AT I/O Card (2S/1P/1G)	10
16 Bit 800x600 VGA Card	29
CHINON 1.2MB FD	47
CHINON 1.44MB FD	43

BAREBONES

(Includes Case, Power Supply, and Motherboard w/o RAM)

AT-286 12MHZ Bare Bone	$159
AT-286 20MHz Bare Bone	174
AT-386SX 16MHz Bare Bone	229
AT-386 25 MHz Bare Bone	309
AT-386 33 W/64K Bare Bone	349

DEPOT REPAIR

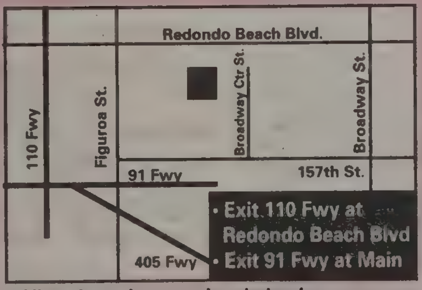
- Fast, Reliable & Guaranteed
- Volume Accounts, Call For Special Pricing!!!
- Call For Other Depot Solutions To On-Site Maintenance

DATA GENERAL • BLOWER MOTORS • SPINDLE MOTORS • LINEAR MOTORS • R/W HEADS • DISK DRIVES • TAPE DRIVES • CRTs • PRINTERS • CPUs MEMORIES • COMMUNICATIONS • **CAD/CAM** TEKTRONIX • MITSUBISHI • V.M.I. • RAMCOM SYSTEMS **PERSONAL COMPUTER** • IBM-PC/XT/AT & COMPATIBLE • COMPAQ • LEADING EDGE • APPLE

WE DO NOVELL! CALL FOR BEST PRICE.

GATETRONIX CONTROL SYSTEMS INC.

Hardware & Software Services
15541 Broadway Center Street, Gardena, CA 90248
BROADWAY CENTER BUSINESS PARK
(corner of Broadway & 157th St.)
Tel: (310) 715-6086
Fax: (310) 715-6649



*All trademarks are ackowledged
**All GCS Systems are fully assembled & tested.
Prices subject to change without notice.

BUSINESS HOURS
MON – FRI 9:00 – 6:00 PM

FINANCING AVAILABLE

GCS/ALL MICRO SERVICES

Valencia Industrial Park
27720 Avenue Scott
Unit 180
Valencia, CA 91355
Tel: (818) 972-9832
Tel: (805) 257-1925

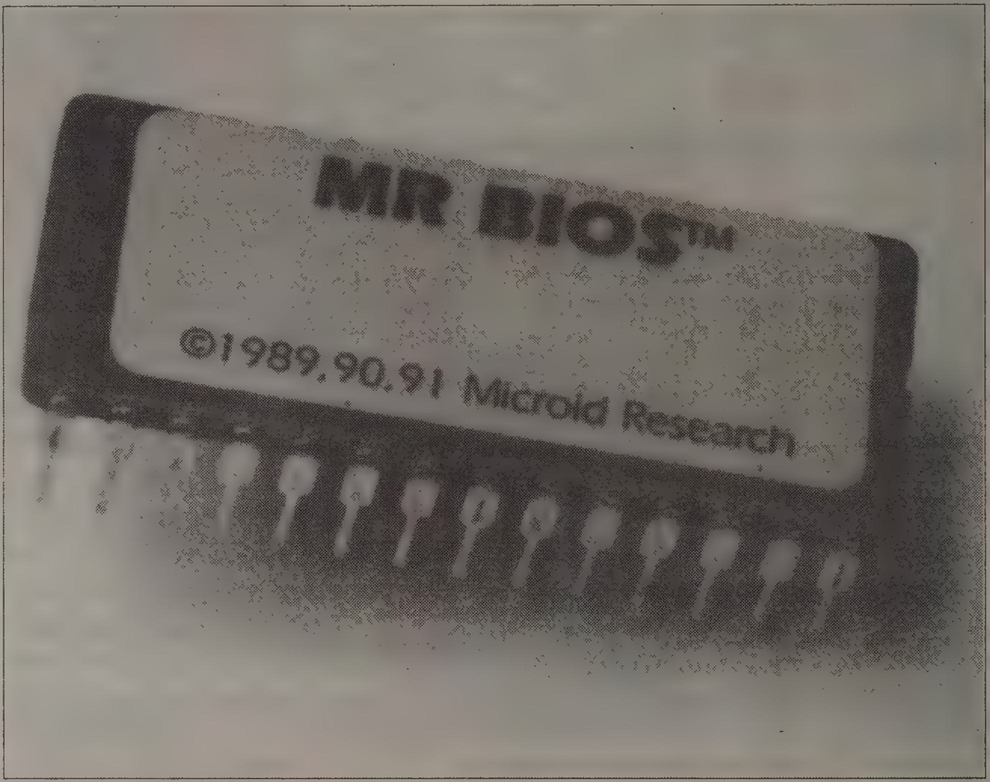
BIOS Diversity In Your Computer

Mr. BIOS Lets You Fine-Tune Your Computer Like No Other BIOS

BY WOODY LISWOOD

The BIOS (Basic Input Output System) chip that runs your computer may not be the sexiest thing happening around your work desk, but without it, you don't have much of a computer. After discovering Mr. BIOS, a replacement BIOS, it felt as though I had found the best of the BIOS chips available today.

Mr. BIOS has more options than any other BIOS I've seen, and with these options I can fine-tune my computer to start up and run the way I want. The BIOS chip setup routine lets you establish this configuration. With Mr. BIOS, you access the setup menu by pressing ESC during POST (Power On Self Test). I liked its top bar menu structure better than the more common displays that use the return key or the spacebar to change items.



WORKING WITH MR. BIOS

The Summary screen contains the information that Mr. BIOS can change, including CPU type, manufacturer, revision number, and speed; boot speed, as low or high; and math chip type and manufacturer.

For the clock speed, you can select either the US or International time and date formats. Mr. BIOS can automatically change its time for daylight savings.

Mr. BIOS detects and displays the type of video card you are using. If you have a dual video system, they will be designated as primary and secondary devices. For the primary video device the options are none, monochrome, CGA fast, CGA slow, V/EGA mono, and V/EGA color.

Mr. BIOS provides the typical support for hard disk drives. The summary shows the number of cylinders, number of heads, sectors per track, precompensation, and landing zone. You can select from the normal drive types, or create two special types for yourself. Additionally, when running an IDE drive, you can explicitly turn on drive translation. There is also an anti-virus feature that prohibits changes to the main boot sector or low-level format of the disk. If you have the C drive as your boot drive, this helps prevent viruses that infect your computer when you boot from a floppy.

For floppy disks, there is support for four drives and five different drive types, including the 3.5" 2.8MB format.

The Boot sequence can be programmed as A then C, C then A, or either by itself. Or you can have the computer prompt you with a menu to select which drive you want to boot from. For speed, I set it just for C so the A drive is not queried during each startup. If I run into a problem with my C drive (and it does happen, occasionally), I can change back to A by pressing ESC during the memory test routine.

Keyboard controls allow you to enable or disable number lock, set how many characters per second you get when you hold down a key on the keyboard, and what type of delay you want before the typematic kicks in. The default is .5 second. After much experimenting changing the default, I left the .5 alone.

Under Mr. BIOS's First Aid menu you can install a special Novell keyboard manager to help if your keyboard has any problems on a Novell network. First Aid can also keep the A20 gate always enabled, which may help with some problems when you are running

continued on page 116

I do love the little guy with the great innovation. If you have any BIOS-related problems on your computer, I recommend getting the latest version of Mr. BIOS.

Copyright© 1992 by Woody Liswood: All rights reserved.

Discover the Power of 32 Bit Video

80486 50MHz 32 Bit Turbo S3 Video $2075*

- True 50MHz Internally and Externally, not DX2
- 4MB 70ns RAM & 256KB Cache
- 1.2MB and 1.44MB Floppy Drive
- 125MB 15ms IDE 64KB Cache Drive
- 32 Bit SVGA 1024 x 768 w/1MB RAM
- S3 Video Accelerator, 32K Color
- 14" SVGA .28mm Non-interlaced Monitor
- 2 Serial, 1 Parallel & 1 Game Ports
- Enhanced 101-key Keyboard
- Medium Tower Case
- Hi-Resolution Mouse Included

80486 33MHz $1850*

80486 50MHz 32 Bit Local Bus Video $1925*

- True 50MHz Internally and Externally, not DX2
- 4MB 70ns RAM & 256KB Cache
- 1.2MB and 1.44MB Floppy Drive
- 125MB 15ms IDE 64KB Cache Drive
- 32 Bit SVGA 1024 x 768 w/1MB RAM 32K Color
- 14" SVGA .28mm Non-interlaced Monitor
- 2 Serial, 1 Parallel & 1 Game Ports
- Enhanced 101-key Keyboard
- Medium Tower Case
- Hi-Resolution Mouse Included

80486 33MHz $1750*

80386SX 20MHz Notebook $1495*

- 2MB RAM and 3.5" 1.44MB Floppy Drive
- 60MB 19ms IDE Drive
- 640x480 LCD VGA Monitor
- 1S, 1P, Ext. Ports of VGA, Keyboard, Scanner and PS/2 Mouse
- Carrying Bag & A/C Adapter
- 6.9 Lbs., 11.4" x 8.7" x 2.1"

80486 33MHz ISA SuperVGA $1550*

- 4MB 70ns RAM & 64KB Cache (+$30 for 256KB)
- 1.2MB and 1.44MB Floppy Drive
- 125MB 15ms IDE 64KB Cache Drive
- 14" SVGA .28mm Multifreq. Monitor and 1MB SVGA Video Display Card
- 2 Serial, 1 Parallel & 1 Game Ports
- Enhanced 101-key Keyboard
- Medium Tower Case
- Hi-Resolution Mouse Included

8048650 MHz $1800*

80386SX 25MHz ISA SuperVGA $895*

- 1MB 70ns RAM
- 1.2MB & 1.44MB Floppy Disk Drive
- 40MB 25ms IDE Drive
- 14" SVGA .39mm Multifreq. Monitor and 1MB SVGA Video Display Card
- 2 Serial, 1 Parallel & 1 Game Ports
- Enhanced 101-key Keyboard
- Medium Tower Case
- Hi-Resolution Mouse Included

80386DX 33MHz Notebook $2095*

- 4MB RAM and 32KB Cache
- 120MB 15ms IDE Drive
- 3.5" 1.44MB Floppy Disk Drive
- 640 x 480 LCD VGA Monitor
- 81-key Keyboard and 2 Serial and 1 Parallel Ports
- Ext. Ports of VGA, Numeric Keyboard & Keyboard
- 11" W x 8.6" D x 2" H, Carrying Bag & A/C Adapter

80486DX 33MHz $2495*

80386 33MHz ISA SuperVGA $1225*

- 4MB 70ns RAM & 64KB Cache (+$30 for 256KB)
- 1.2MB & 1.44MB Floppy Drive
- 125MB 15ms IDE 64KB Cache Drive
- 14" SVGA .28mm Multifreq. Monitor and 1MB SVGA Video Display Card
- 2 Serial, 1 Parallel & 1 Game Ports
- Enhanced 101-key Keyboard
- Medium Tower Case
- Hi-Resoultion Mouse Included

80386 40MHz $1245*

With a 32 bit S3 Graphics Accelerator Video Card, our 80486 local bus system runs up to 30 times faster than regular 16 bit video systems run. Also, our unbeatable low prices make those systems affordable to users who are looking for power and speed.

Extras without extra cost:

- Ergonomic Quality Case Design
- 30 Day Money-back Guarantee
- Lifetime Technical Support
- One Year Labor and Parts Warranty
- 72 hours Burned-in Test *(Computer System)*
- We Accept POs from Qualified Commercial Accounts
- Customize a System to Your Requirements
- Power Package Including Even More Options!
- Special Price on Panasonic Printers and Modem Fax Card with System Purchase!

FREE
Hi-Res Mouse with System Purchase

ATLANTIC COMPUTER SYSTEMS
376 Lemon Creek Drive, Unit F, Walnut, CA 91789
Tel: (213) 267-1638 Fax: (213) 267-1583
M–F 9:00AM–6:00PM Sat. 10:00AM–3:00PM

PC-SEL INC.
15705 Strathern Street, #4, Van Nuys, CA 91406
Tel: (818) 782-1111 Fax: (818) 782-3946
M–F 9:00AM–6:00PM Sat. Appointment Only

* All prices are C.O.D. (company or personal checks).

C:M

PASADENA

BEST PRICES FOR SMART BUYERS. OUR EXPERTISE WILL ENHANCE YOUR BUSINESS.

WE DO ALL NOVELL INSTALLATIONS

We have 2 CNE to serve all your LAN needs!

NETWORK SPECIAL

SERVICER: (1 User)
- 486-33 MHz, 256K CACHE
- 4MB RAM
- 210MB HARD DISK
- 1.2 & 1.44MB FLOPPY DRIVE
- 14" MONO. MONITOR
- 16 BIT ETHERNET CARD
- FULL TOWER CASE W/250W POWER SUPPLY

STATIONS: (4 Users)
- 386SX-25 MHz
- 1MB RAM
- 1.2MB FLOPPY DRIVE
- 16 BIT ETHERNET CARD
- 14" MULTISCAN 1024 SVGA MONITOR 0.28 DOTS
- MINI TOWER CASE W/ 200W POWER SUPPLY

INCLUDING: NOVELL NET WARE V3.11 (5 USER)

$4895

ON SITE SERVICE AVAILABLE

486DX2-50MHz ISA/EISA

- INTEL 80486 PROCESSOR BUILT-IN MATH
- 256K CACHE RAM
- 4MB RAM, UP TO 32MB RAM ON BOARD
- 1.2MB & 1.44MB FLOPPY DRIVE
- 170MB HARD DISK, 17ms (32K Cache)
- *32 BIT EISA FD/HD CONTROLLER (EISA)*
- *DUAL IDE FD/HD CONTROLLER (ISA)*
- 101 ENHANCED KEYBOARD
- AT I/O: 2 SERIAL/PARALLEL/GAME PORTS
- 16 BIT SUPER VGA CARD W/1MB
- 14" 1024 x 768 0.28 DOTS SUPER VGA

ISA	EISA
$1895	$2495

486-33MHz ISA/EISA

- INTEL 80486 PROCESSOR BUILT-IN MATH
- 256K CACHE RAM
- 4MB RAM, UP TO 32MB RAM ON BOARD
- 1.2MB & 1.44MB FLOPPY DRIVE
- 125MB HARD DISK, 17ms (32K CACHE)
- *32 BIT EISA FD/HD CONTROLLER (EISA)*
- *DUAL IDE FD/HD CONTROLLER (ISA)*
- 101 ENHANCED KEYBOARD
- AT I/O: 2 SERIAL/PARALLEL/GAME PORTS
- 16 BIT SUPER VGA CARD W/1MB
- 14" 1024 x 768 0.28 DOTS SUPER VGA

ISA	EISA
$1550	$2095

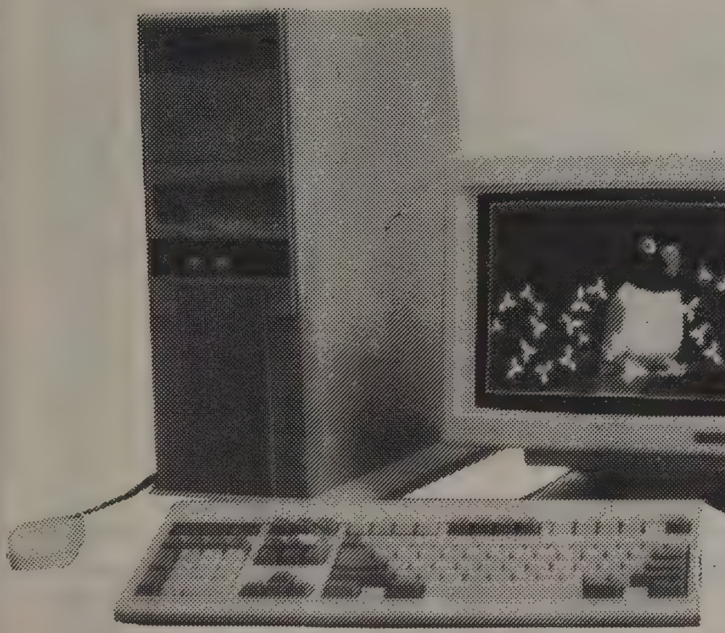
Panasonic
Office Automation OA
Authorized Dealer

SPECIAL ON PRINTERS

KX-P 4410 Laser Printer	$635
KX-P 4450I Laser Printer	1150
KX-P 2624 Printer	399
KX-P 1124I Printer	289
KX-P 1123 Printer	199
KX-P 2123 Color Printer	299
KX-P 2124 Color Printer	379

**Call for prices —
We beat any price advertised in MicroTimes.**

COMPUTER C:M



NOTEBOOK SPECIALS

CHICONY 386SX-20MHz

- 2MB RAM
- 60MB HARD DISK
- 1.44 FLOPPY
- 2 SERIAL, 1 PARALLEL
- 640 X 480 VGA DISPLAY
- 9.5" SCREEN
- 83 KEYBOARD
- WEIGHT 6.7 LBS.

$1395

386DX-33MHz

- 4MB RAM
- 120MB HARD DISK
- EXT. NUMERIC KEYPAD
- 1.44 FLOPPY
- 2 SERIAL, 1 PARALLEL
- 640 X 480 VGA DISPLAY
- WEIGHT 7 LBS.

$1995

386SX-25MHz

- 2MB RAM
- 80MB HARD DISK
- 9600 FAX/2400 MODEM
- 1.44 FLOPPY
- 2 SERIAL, 1 PARALLEL
- 640 X 480 VGA DISPLAY
- BUILT-IN AC/DC ADAPTER
- 83 KEYBOARD
- WEIGHT 6.4 LBS.

$1750

486DX-33MHz

- 4MB RAM
- 120MB HARD DISK
- EXT. NUMERIC KEYPAD
- 1.44 FLOPPY
- 2 SERIAL, 1 PARALLEL
- 640 X 480 VGA DISPLAY
- WEIGHT 7 LBS.

$2455

LOCAL BUS

- INTEL 80486 PROCESSOR BUILT-IN MATH
- 256K CACHE RAM
- 4MB RAM UP TO 32 MB RAM ON BOARD
- DUAL FD/HD CONTROLLER
- 1.2MB & 1.44MB FLOPPY DRIVE
- *125MB HARD DISK (486-33)*
- *170MB HARD DISK (486-50)*
- *32 BIT SUPER VGA CARD W/1MB*

486-33MHz	486DX2-50MHz
$1730	$2095

CBM 386-40MHZ

- 64K CACHE
- 4MB RAM, UP TO 16MB RAM ON BOARD
- 1.2MB & 1.44MB HIGH DENSITY FLOPPY DRIVE
- 105MB HARD DISK, 17ms BUILD IN 32K CACHE
- DUAL FD/HD CONTROLLER
- 101 ENHANCED KEYBOARD
- AT I/O: 2 SERIAL/PARALLEL/GAME PORTS
- MINI TOWER CASE W/200W PS
- 16 BIT SUPER VGA CARD W/1MB
- 14" 1024 x 768 0.28 DOTS SUPER VGA

$1195

MULTIMEDIA PACKAGE

MULTI-FUNCTION, PERFECT FOR THE HOME

- 386-40MHZ, 64K CACHE
- 4MB RAM
- 1.2MB & 1.44MB HIGH DENSITY FLOPPY DRIVE
- 105MB HARD DISK, 17MS BUILT-IN 64K CACHE
- DUAL IDE FD/HD CONTROLLER
- 16 BIT SUPER VGA CARD W/1MB
- 14" 1024 X 768 SVGA MONITOR, 0.28 DPI
- *CREATIVE LABS SOUNDBLASTER PRO AUDIO CARD WITH MIDI PORT AND STEREO OUTPUT*
- *INTERNAL CD ROM*
- *6 CD PACKAGE—WINDOW 3.1 W/MULTI-MEDIA EXTENSIONS, BOOKSHELF LIBRARY, CREATIVE/PROSONUS DISK, SELECTWARE, SHERLOCK HOLMES, MS WORKS FOR WINDOWS*
- *AMPLIFIED SPEAKER MOUSE, JOYSTICK, KEYBOARD*

$1895

Look At Our Customers From

UCLA
USC
CALTECH
JPL
PARSON'S
COUNTY OF LA
OCCIDENTAL COLLEGE
PACIFIC BELL
LUCAS AEROSPACE
WEBER AIRCRAFT
US POST OFFICE
KAISER PERMANENTE
ROCKWELL
HUNT WESSON
GTE

PASADENA COMPUTER SERVES CONSULTANTS, SCHOOLS AND ALL BUSINESSES. WE OFFER COMPETITIVE PRICES AND QUALITY SERVICE. WE ALSO DO NOVELL NETWORKING INSTALLATION, SYSTEM INTEGRATION AND DATABASE DESIGN.

PLEASE CALL US AT ANY TIME OR VISIT OUR SHOWROOM AND SERVICE CENTER.

THANK YOU FOR YOUR BUSINESS.

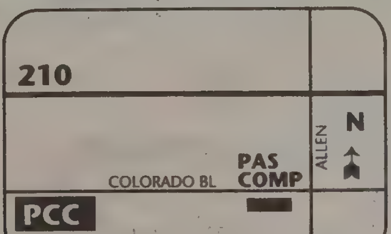
6 REASONS WHY PEOPLE CHOOSE PASADENA COMPUTER OVER OTHERS

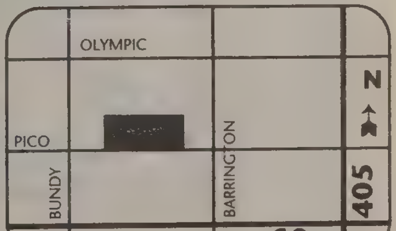
1) NAME BRAND COMPONENTS
2) UNBEATABLE PRICES
3) ONE YEAR WARRANTY ON PARTS & LABOR
4) DIRECT FROM FACTORY
5) LIFETIME TECHNICAL SUPPORT
6) WE CUSTOM DESIGN TO FIT YOUR NEEDS

PASADENA COMPUTER
NOW 2 LOCATIONS TO SERVE YOU

Main Office
TEL: (818) 568-1088
FAX: (818) 568-9132
1756 E. Colorado Blvd.
Pasadena, CA 91106

W. LA Branch
TEL: (310) 575-4028
FAX: (310) 575-3831
11737 West Pico Blvd.,
Los Angeles, CA 90064





BUSINESS HOURS
MONDAY–FRIDAY 9:00–6:00
SATURDAY 10:00–6:00

ALL PRICES AND PRODUCTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

Three Computers In One

The Amiga Multiplatform Solution

BY RICH GRACE

RESOURCES:

Commodore Business Machines
West Chester, PA
Amiga 2000 CPU: List $1195
386SX-20 Bridgecard: List $959
286 Bridgecard: List $499
XT Bridgecard: List $299
(215)431-9100 or
1-800-66-AMIGA

ReadySoft, Inc.
AMAX II Plus: List $500
30 Wertheim Ct., #2
Richmond Hill, Ontario,
Canada L4B1B9

Quantum Corp.
Plus HardCard: List $595
500 McCarthy Blvd.
Milpitas, CA 95035
(408)894-4000

The Amiga's been out for some years now, and has been considered a "niche" machine by most users, who tend to identify it with games and desktop video.

However, one generally unnoticed aspect of this machine is its unique multiple platform capability. The Amiga is the only machine to successfully implement the capabilities of the top three consumer microcomputers in the market—PC, Mac, and Amiga—all in one box. In this article, we'll explore how this is done, and the products that make it possible.

To begin with, let's examine the hardware. Our multiplatform system is an Amiga 2000 CPU with the following enhancements:

__Amiga Side__

AmigaDOS 2.04 ROM upgrade
AdSpeed 14 Mhz 68000
9 MB RAM
1.0 GB Micropolis Hard Disk
600 MB TEAC Serpentine tape drive
Seiko CM1450 Multisync Monitor
MicroWay Flicker Fixer video card

__PC Side__

Commodore 80286 BridgeCard with 1MB RAM
Plus Development 105MB HardCard
Sigma 512K VGA Card
Dual Serial/Parallel Ports

__Macintosh Side__

AMAX II Plus Macintosh Emulator
Macintosh Plus ROMS
Macintosh External Floppy Drive

This machine is in use at Wright Engineering in Huntington Beach, a small software engineering firm I'm affiliated with. It has just released a shareware product called GDraw for the PC, largely created on this Amiga platform.

THE AMIGA/MAC INTERFACE

Leaving the legal controversy of cloning Macs aside, the Amiga/Mac interface consists of a very simple setup: a set of Apple Mac Plus ROMs obtained from a reseller, and a module called AMAX II Plus.

On a 14 MHz Amiga, Macintosh software runs roughly three times faster than on a stock Macintosh Plus or Mac Classic.

AMAX II Plus is an Amiga 2000 card, which plugs into the Amiga backplane, and provides the ability to run most major Macintosh applications software (our test bed included Microsoft Word 5.0, Aldus PageMaker 4.2, and Adobe Type Manager, plus a selection of fonts). AMAX II Plus lists for $500, which I consider somewhat exorbitant, but the quality of the product does help compensate for its price.

On a 14 MHz Amiga, Macintosh software runs roughly three times faster than on a stock Macintosh Plus or Mac Classic. The processor speed is one factor; another, more important, one is the graphics coprocessor chip set built onto the Amiga motherboard, which AMAX fully supports. With such a system, screen updates are quicker than my Macintosh IIci! Any Amiga processor upgrade will automatically boost the performance of the Mac emulator.

Another felicitous aspect of AMAX is its ability to harness the Amiga SCSI bus to its fullest. Amiga hard disk subsystems can be painlessly allocated for Macintosh partitions. SCSI performance is fully functional, dependent only on the speed of the SCSI controller. We've set aside a 100MB partition on the 1GB Micropolis hard drive, and it works seamlessly. We even use the TEAC tape drive to back up the Mac system.

Memory available on AMAX II Plus is the same as for a Mac Plus, which means you're limited to 4MB regardless of the memory available on the Amiga. It's possible to run System 7 on such a system, but it's not a good idea because of the limited memory addressability, and the overall sluggishness of System 7 on 16-bit systems. It's also not possible to run Mac II ROMS, or software that requires Color QuickDraw or other recent additions to the Mac system. However, if all you need to do is run some of the essential Macintosh applications, and you don't want to spend money on a new system or take up more desktop space, AMAX is an efficient option.

THE AMIGA/PC INTERFACE

The Amiga 2000 and 3000 Tower systems are distinguished by a dual backplane: one backplane on the system board is dedicated to Amiga expansion slots, and another is devoted to standard ISA PC expansion slots (See Fig. 1). The two backplanes are joined by a pair of "bridge" slots that share the PC and Amiga slot architectures. This dual backplane sets the Amigas apart from any other machine in its class, because you can place an Intel processor-based card on it, enabling simultaneous Amiga/PC operations in the same box.

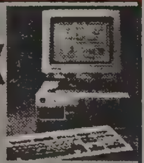
The secret to this dual-platform operation is called the Bridgecard, and it's manufactured exclusively by Commodore. The Bridgecard comes in two flavors: 8088 and 80286 (it's rumored that a 386SX Bridgecard is imminent). The XT bridgecard is barely worth mentioning, and the 80286 Bridgecard runs at a 8 MHz, which is barely adequate for any serious work. (It's possible to place a 386SX accelerator into the 286 socket on the Bridgecard, but we have not done this.) The

continued on page 122

Copyright © 1992 by Rich Grace. All rights reserved. *Rich Grace is a Contributing Editor of PC Home Journal, and a contributor to Computer Buying World. He's a technical writer, and an enthusiastic user of PC, Mac, and Amiga platforms. He lives in Orange County, and can be reached on MCI Mail ID 484-6217.*

Fry's ELECTRONICS

SEE OVER 10,000 ELECTRONIC ITEMS AT LOW, LOW PRICES!



GoldStar 16MHz 386SX 40MB VGA BUNDLE

80386SX 16MHz CPU • 40MB Hard Disk 5.25" 1.2MB Floppy Disk • 3.5" 1.44MB Floppy Disk 1MB of RAM Expandable to 32MB • 3-Button Mouse 2400 Baud Internal Modem • 101-Key Sculptured Keyboard • 2 Serial/1 Parallel Ports • 5 available Expansion Slots • 14" • MS DOS PFS First Choice Modem

VGA MONITOR INCLUDED

$899

#1688540

TOSHIBA T2200SX

TOSHIBA T2200SX 20MHz 386SX 80MB NOTEBOOK

INTEL 80386SX 20MHz CPU • Socket for 80387SX Real Time Clock/Calendar • 2MB RAM Expandable to 10MB • 80MB 25ms Hard Drive • 3.5" 1.44MB Floppy Disk Drive • Fluorescent Sidelit LCD Display • VGA Monitor Port • 5.5 lbs. With Battery • Nickel Hydride Battery Serial/Parallel Ports

#1650624

$2199

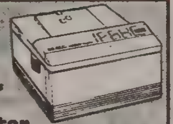
IBM PS/1 20MHz 386SX 85MB VGA SYSTEM

20MHz 80386SX CPU • 85MB Hard Drive • 1.44MB Floppy Drive 2MB RAM Expandable to 16MB Serial/Parallel Ports • 3 AT Expansion Slots Mouse • 2400B Modem • 14" IBM Color VGA Display • DOS 5.0, DOS 5.0 WINDOWS, WORKS, PRODIGY. #1691524

$1299

VGA MONITOR INCLUDED

HEWLETT PACKARD
Authorized Dealer



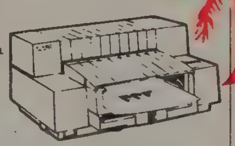
LaserJet IIP+

Personal Laser Printer with the fastest "Business Speed" in the business!

4 Pages/Minute • PCL4 • Parallel Interface 512K Expandable to 4.5MB • 70 Page Input tray #1625930

$739

HEWLETT PACKARD
Authorized Dealer



DeskJet 500C

Color InkJet Printer

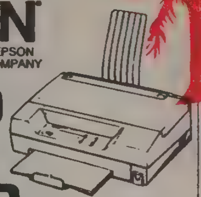
COLOR INKJET OUTPUT AT 300 DPI!

Prints in Color or Black and White 100 Sheet Paper Feeder Whisper Quiet • 3 Year Warranty #1632480

$629

EPSON

WHEN YOU'VE GOT AN EPSON YOU'VE GOT A LOT OF COMPANY



AP3250 24 PIN PRINTER

50 Sheet Paper Cassette Tray Quiet • ESC/P2 Control Language Simple Control Panel • Two Year Warranty #1667299

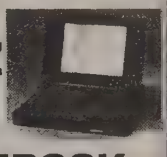
$219

20MHz 386SX 80MB NOTEBOOK

3.5" 1.44MB Floppy Disk Drive MITAC 2MB RAM • 80MB Hard Drive Serial/Parallel Ports • VGA Graphics MS-DOS • Super Twist LCD Screen

#1662559

$1669



ARC 16MHz 386SX 40MB NOTEBOOK

3.5" 1.44MB Floppy Disk Drive 1MB RAM Expandable to 5MB 40MB Hard Drive Serial/Parallel Ports • VGA Output

#1695182

$1188

VISTAPRO

Vistapro, the first "Virtual Reality" landscape generator allows you to create, animate and explore stunningly beautiful landscapes, complete with trees, rivers, lakes, snow and haze, in magnificent 3-D resolution

$59.95

#1705980

Give Your Mouse a Place to Roam MOUSE PAD

9" X 8" Pad With Fry's Logo Imprinted • Red, Blue or Grey

#1551750

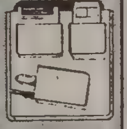
$1.99

ARTEC 3 BUTTON SERIAL MOUSE

High Resolution: 250 DPI Fast Tracking Speed: 650 mm/sec UPSwitch between: Microsoft Mouse and PC Mouse Compatible ARTEC Menu Maker Software #1662571

$9.90

DEFY THE 2ND LAW OF DESK DYNAMICS* WITH BASIC NEEDS INC UTILITY PAC



Save desktop space by storing your mouse, mouse pad, disks, paper, and pens conveniently on the side of your computer or any flat surface. The Basic needs Utility Pac™ is made from high-impact recycled plastic.

*Desktop disorder leads to total chaos

$10.99

#1584338

Home of Fast, Friendly, Courteous Service

Fry's ELECTRONICS

Prices good through August 10, 1992

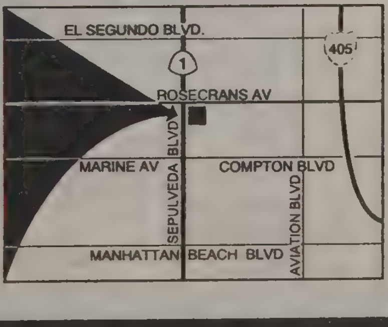
Limit Rights Reserved
Not Responsible For
Typographical Errors

STORE HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA AND MASTERCARD

MANHATTAN BEACH

3600 Sepulveda Blvd.
(310) 364-FRYS (3797)
CORP. P.O. FAX (310) 364-3700



25MHz 386SX
DESK TOP SYSTEM

80386SX 25MHz CPU
Socket For 80387SX
1MB RAM Expandable To 16MB
5.25" 1.2MB Floppy Disk Drive
IDE 2 Hard/2 Floppy Controller
101-Key Keyboard • Clock/Calendar
#1659210

$299

33MHz 386
MINI TOWER SYSTEM

64K CACHE EXPANDABLE TO 256K
80386 33MHz CPU • 1MB RAM Expandable to 32MB
5 1/4" 1.2MB
Floppy Disk Drive
IDE 2 Hard/
2 Floppy Controller
101-Key Keyboard
Clock/Calendar
#1605565

$469

33MHz 486
DESKTOP SYSTEM

64K CACHE EXPANDABLE TO 256K
80486 33MHz
1MB RAM Expandable to
32MB On Mother Board
5.25" 1.2MB Floppy Disk Drive
IDE 2 Hard/2 Floppy Disk Controller
Clock/Calendar • 101-Key Keyboard
Monitor Not Included #1671322

$769

50MHz 486DX
MINI TOWER SYSTEM

64K CACHE EXPANDABLE TO 256K
80486DX2 50MHz CPU
1MB RAM Expandable to
32MB On Motherboard
5.25" 1.2MB Floppy Disk Drive
IDE 2 Hard/2 Floppy Controller
Clock/Calendar • 101-Key Keyboard
#1687480

$999

MICRONICS
COMPUTERS INC

20MHz 386SX 60MB NOTEBOOK

3.5" 1.44MB Floppy Disk Drive
1MB RAM Expandable to 5MB
60MB Hard Drive
Serial/Parallel Ports
VGA Output #1704381

$1399

Avanti 025

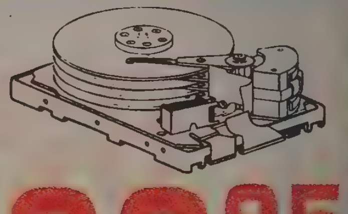
25MHz 386SXL 62MB NOTEBOOK

25MHz 386SXL CPU
2MB RAM Expandable to 8MB
62MB Hard Disk Drive
Fax Send and Receive Modem
3.5" 1.44MB Floppy Drive
High Contrast 10 Inch LCD
Advanced Power Management
Unique Pivoting Screen Saves Space
DOS, Windows • Carrying Case #1660937

$1999

MOTHER BOARDS

Board	Details	Price
20MHz 486SX	0K RAM EXP. TO 32MB #1646753	$299
33MHz 386DX	64K CACHE EXPT. TO 256 0K RAM EXP. TO 32MB #1649457	$279
33MHz 486DX	64K CACHE EXPT. TO 256 0K RAM EXP. TO 32MB #1650174	$599



SAMSUNG SHD-3062A 120MB IDE HARD DRIVE

1" HT. 16msec
Access
#1708695

$329 95

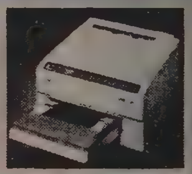
Panasonic
Office Automation

KX-P2180 9-PIN PRINTER

QUIET PRINTER TECHNOLOGY
9 Pin • 80 Columns
192 CPS
38 CPS NLQ
6 Built In NLQ Fonts
240 x 216 DPI Resolution
Push-Pull Tractor
Optional Color
#1658714

$179

Panasonic
Office Automation



KX-P4410 LASER PRINTER

5PPM 300 DPI
512K RAM Expandable to 4.5MB
Bitmap Fonts
200 Sheet Paper
Multi-purpose Cassette
#1659047

$629

Charlie Chip Says:
"Your Best Computer Buys Are Always At...

FRY'S ELECTRONICS"

DATA CARTRIDGES

DC600A 60MB DATA CARTRIDGE

Unformatted • 1/4" Tape
Dual Belted
Lifetime Warranty
#1623684

$16.95

DC2120 120MB DATA CARTRIDGE

Unformatted • 1/4" Tape
Dual Belted
Lifetime Warranty
#1708514

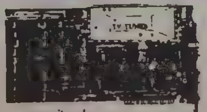
$16.95

1024 X 768 ON-INTERLACED 14" SUPER VGA MONITOR

024 X 768
3 Dot Pitch
on-Interlaced
ne year Warranty
FINITI IN8328N4
1657506

$339.95

DESKTOP TV



Full Screen EDTV on your own monitor!
Twice as sharp as present TV sets
119 channels cable ready
PC-TV one touch switching
Audio monitoring mode
Window and LAN compatible #1703597

VISIONEX

$199.95

GoldStar 16" LARGE SCREEN 1024 x 768 SVGA MONITOR

1024 x 768 High Resolution VGA
.29mm Dot Pitch • Tilt and Swivel Base
Non-Interlaced Monitor

Model
1620 PLUS
#1655984

$699

Acculogic RAMpAT!

Extended memory for 80286, 80386 and 80486 systems. Adds up to 16MB of memory, using 1M x 9 and 4M x 9 SIMMs. Plugs into 16-bit industry standard expansion slot. Ideal for Windows, MS-DOS 5.0, OS/2 and Novell NetWare users.

$99.95

#1545430

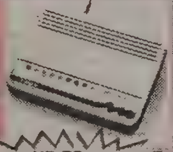
MEDIA VISION MULTIMEDIA PC UPGRADE KIT

ıcludes Windows 3.1
o AudioSpectrum Plus (44khz Sampling & Playback,) Voice, 4 Operator Synthesizer, Full 16-bit Bus Connector)
ıny CDU-535 Internal CD-ROM MPC Certified
ftware (Compton's Encyclopedia, King's Quest V, acromind Action Multimedia Presentation Software)
ereo Studio F/X (Waveform Sound Editor)
o Speech (Text to Speech Synthesizer)
679559

MPC Multimedia PC

$799.99

SPORTSTER 9600B EXTERNAL MODEM WITH 14,400 BAUD FAX



V.32BIS, V.42/MNP2-4, VI42BIS/MNP 5
WITH 57,600BP

UP TO 57,600 BPS THRU-PUT WITH V.32 BIS!

$368

#1704495

TEXTUAL TRANSFERENCE TECHNOLOGY!

TYPIST PLUS GRAPHICS

The Typist Plus graphics solution is complete - the finest OCR available and complete image editing software. This Macintosh, Windows and DOS compatible hand held scanner can read text and numbers directly into your word processor, spreadsheet or DTP application. And Typist Plus can scan and edit images with The Graphic Editor. IBM
#1637094

CAERE®

$449

96/24 INTERNAL 9600B FAX/2400B MODEM

9600B Send/Receive Fax
2400B Internal Modem
Auto Dial/Auto Answer
Hayes Compatible
Communication
Software
One Year Warranty
#1704495

TRUE 9600 BAUD IN SEND AND RECEIVE MODE!

$88

MOUSE SYSTEMS OmniMouse™

00 DPI Resolution
djustable from
0-6400 DPI
Button Serial
ully Microsoft Mouse Compatible
allistic/Optomechanical #1633160

$24.95

RETINAL RELIEF ANTI-GLARE FILTERS

Cuts ultraviolet and daylight reflection
Enhance screen sharpness and contrast

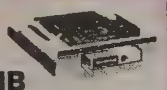
#1620234	For 12" Color Monitor	$8.95
#1620245	For 12" Mono Monitor	$7.95
#1620212	For 14" Color Monitor	$9.95
#1620223	For 14" Mono Monitor	$8.95

Labtec SHIELDED COMPUTER SPEAKERS

High efficiency micro stereo speakers
Built-In power booster (4, "c" size batteries not included) Individual volume controls
DC 6 volt input jack • 3.5mm stereo plug
CS-150
#1664001

$19.99

COLORADO DJ-10 120MB TAPE BACK-UP

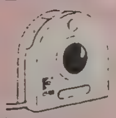


40/60/120MB FORMAT
Back up any size drive from 40MB to 120MB • Internal XT/ATDrive
Runs off Floppy Disk Controller

$219.95

#1498817

LOST FOR SPACE? TrackMan Portable

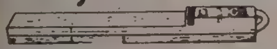


Turns Any Space Into Workspace
Small, lightweight, ergonomic. For right- or left- handed use. 100% Microsoft™ compatible #1620256

$94.95

LOGITECH

Avoid System Meltdown

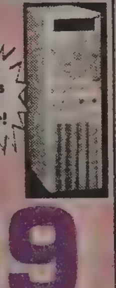


PROLINE 10 SIX OUTLET SURGE PROTECTOR

For IBM, Apple & Printers
240 Joules Energy Dissipation
5 Year Waranty #1483842

$22.95

COMPUTER CASE



DIMENSION:
460mm x 190mm x 620mm (LxHxW)
MEET MAINBOARD:
286, 386, 486,
DRIVE:5.25"
Floppy Disk Drive x 10
DVC-T01 #1688539

285 Watts of Power!

$189

PROTECT YOUR INVESTMENT

Qualtec

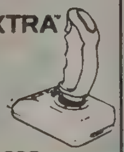
PC SECURITY LOCK-KIT 5B

2-3.5" X 4" Metal Mounting Plates
5' Vinyl Covered Cable and Padlock
#1618354

$19.95

FLY THE ELECTRONIC SKIES!

Suncom Technologies Analog XTRA™ JOYSTICK



4 Fire Buttons
Variable
Auto-Fire Rate
Throttle Control #1598830

$29.95

GET THE KEYBOARD WITH THE "ORIGINAL CLICK!" AT/XT 101- KEY KEYBOARD

CABLE MANAGEMENT BUILT-IN USER SELECTABLE LEFT, RIGHT OR CENTER CABLE EXIT
#1619986

$29.95

FRY'S ELECTRONICS

HOME OF FAST, FRIENDLY, COURTEOUS SERVICE

Limit Rights Reserved
Not Responsible For
Typographical Errors

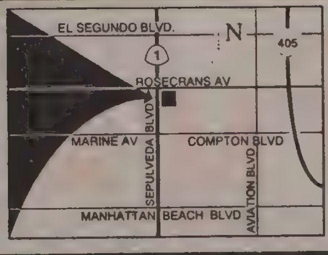
Prices good thru
August 10, 1992

Fry's is an authorized Panasonic O/A service facility

STORE HOURS
MON - FRI
8AM - 9PM
SATURDAY
9AM - 8PM
SUNDAY
9AM - 7PM

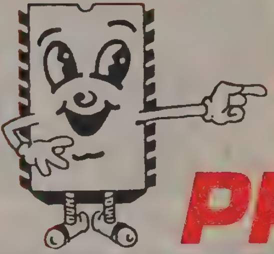
MANHATTAN BEACH

3600 Sepulveda Blvd.
(310) 364-FRYS (3797)
CORP. P.O. FAX (310) 364-3700



VISA
MasterCard
VISA and MasterCard Accepted

Fry's ELECTRONICS



ONE STOP SHOPPING FOR THE HI-TECH PROFESSIONAL!

25MHz 486SX MID-SIZE TOWER

80486SX 25MHz CPU 80387 Socket
1MB of RAM Expandable to 32MB
IDE 2 Hard/2 Floppy Controller
3.5" 1.44MB Floppy Drive
101-Key Keyboard • Clock/Calendar
#1704417

$499

SAMSUNG 25MHz 386SXL NOTEMASTER w/ 60MB HARD DRIVE

80386SXL 25MHz CPU • 60MB Hard Drive
2MB RAM • 3.5" 1.44MB Floppy Disk Drive
10" LCD VGA Display • Serial Parallel Ports
Power Management
Model S3725 By Samsung
#1680634

UPGRADEABLE HARD DRIVE TO 80MB, 120MB ETC.

$1999

50MHz 486DX 200MB SVGA SYSTEM MINI TOWER

50MHz 80486DX2 CPU
1MB RAM Expandable to 256K
200MB Maxtor Hard Drive
1024 X 768 SVGA Display and Card
3.5" 1.44MB Floppy Disk Drive
IDE 2 Hard/2 Floppy Controller
101-Key Keyboard • Clock/Calendar
#1700099

$1999

Canon BUBBLE JET PORTABLE INKJET PRINTER

Plain Paper Portable Printer!
83 Characters / second
45 DBA - It's quiet!
Letter Quality text & Graphics
#1701540

$279

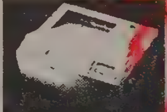
Panasonic Office Automation KX-P1180i 9 PIN PRINTER

240 CPS Draft • 48 CPS NLQ
240 x 216 DPI Resolution
80 Column • 4 Built-in Fonts
Cut Sheet & Tractor Feed
#1653649

$169

EPSON EPL-8000 LASER PRINTER

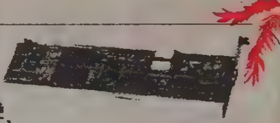
WHEN YOU'VE GOT AN EPSON YOU'VE GOT A LOT OF COMPANY



10 Pages Per Minute • 300 DPI
1MB RAM Expandable to 7.5MB
250 Sheet Paper Tray • Resident Fonts
Scalable Fonts • Serial/ Parallel Interfaces
HP LaserJet III Emulation
2 Year Warranty
#1667288

$1399

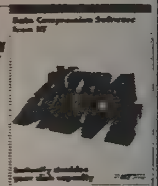
ORCHID FAHRENHEIT 1280° WITH 1MB VRAM



1280 X 1024 16 Colors
1024 X 768, 256 Colors
640 X 480 up to 32,000 Colors
72hz Non-Interlaced • 132 Column Text Mode
Windows Accelerator for speeds 12 times faster than standard VGA!
#1627275

$269.95

IIT INTEGRATED INFORMATION TECHNOLOGY XTRA DRIVE



Xtra Drive Software double the hard drive capacity by compressing all your files, and creates a new drive that is equal in size to your original drive. It is easy to understand and transparent that all work is done in the background.

$49.95

IBM #1706372

Maxtor LXT-340A 340MB 3.5" IDE HARD DRIVE

3.5" HT • 15MS Access Time
#1625653

$799.95

ECONOMIC ENTERTAINMENT ENHANCERS

SUPER SONIC SATISFACTION

100% SOUNDBLASTER COMPATIBLE THUNDERBOARD SOUND BOARD

dlib and Sound Blaster Compatible
Sampling Rates up to 22KHz
Hardware Compression & Decompression at 2:1, 3:1 and 4:1 • MIDI Input • Game port: Standard IBM Joystick
#1620980

$88.88

MEDIA VISION

SHIELDED COMPUTER SPEAKERS

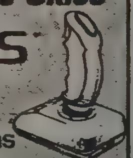
labtec CS-150

High efficiency micro stereo speakers
Built-In power booster (4, "c" size batteries not included)
Individual volume controls • Bass switch
Treble boost switch • DC 6 volt input jack
3.5mm stereo plug #1664001

$19.99

Fly The Electronic Skies

Analog PLUS JOYSTICK



Features 4 Fire Buttons with Variable Auto-Fire
#1598829

$19.95

Fry's ELECTRONICS

Home of Fast, Friendly, Courteous Service

Prices good through July 14, 1992

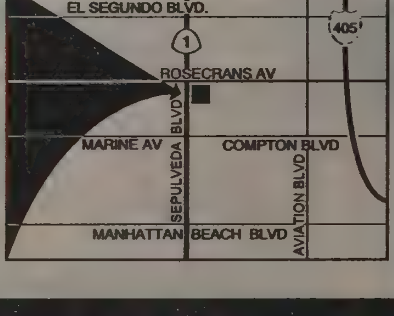
Limit Rights Reserved
Not Responsible For Typographical Errors

STORE HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA AND MASTERCARD

MANHATTAN BEACH

3600 Sepulveda Blvd.
(310) 364-FRYS (3797)
CORP. P.O. FAX (310) 364-3700

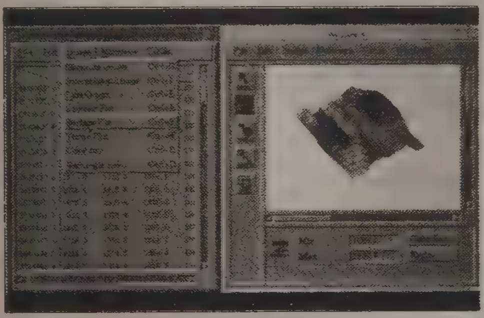


PRODUCT SPOTLIGHT

New Products

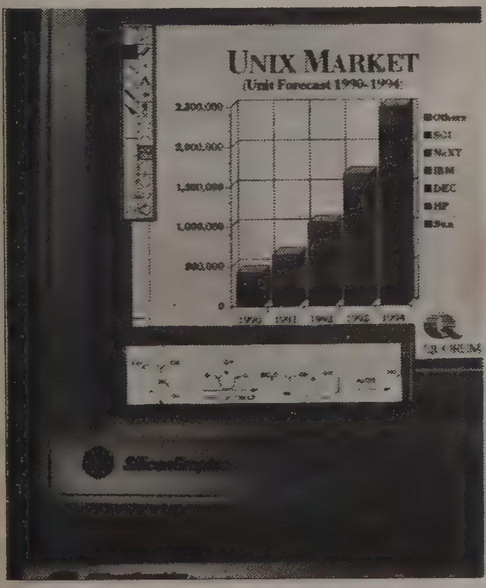
UNIX SOFTWARE

SPYGLASS TRANSFORM FOR DECSTATIONS



Spyglass Transform for DEC RISC/ULTRIX workstations uses the Motif interface to combine a streamlined Macintosh-style interface with Digital workstation performance. Users can instantly create color raster images, line graphs, surface plots, contour plots, and vector plots from 2-D data arrays, all with simple point-and-click operations and no programming. The program reads most data formats, including 2-D ASCII and ASCII X-Y column data, 2-D and 3-D data, and TIFF and FITS image files. The Notebook window feature offers a comprehensive set of trigonometric, statistical, and mathematical functions. ($895) Spyglass, Inc., 701 Devonshire Dr., Champaign, IL 61820. (217)355-6000.

QUORUM COMPATIBILITY ENGINE



Quorum's Compatibility Engine is a new software technology that enables Macintosh applications to run on a variety of RISC-based workstations at high speed with native graphical user interface support, and little or no modifications of the original program. Using the Compatibility Engine, software developers can continue to develop applications based on the Macintosh programming model while simultaneously gaining access to leading RISC-based platforms. Additionally, Quorum's technology brings an important advance in connectivity between computers with different operating systems and CPUs. At present, UNIX workstations can act as file servers for networks of Macintoshes, but UNIX users cannot manipulate data directly. With the Compatibility Engine users can view and edit Macintosh documents directly on their UNIX workstations. Quorum Software Systems, Inc., 4700 Bohannon Dr., #125, Menlo Park, CA 94025. (415)323-3111.

Continued

PRODUCT UPDATES

➤ **Autodesk** is shipping **Generic CADD for the Macintosh v2.0**. Generic CADD is now compatible with AutoCAD Release 11 and incorporates other new features to make it easier to learn and operate. Autodesk Retail Products, 11911 N. Creek Pkwy. S., Bothell, WA 98011. 1-800-228-3601.

➤ **Claris** announced **MacDraw Pro 1.5**. Current users of MacDraw Pro may update to v1.5 for $15. MacDraw II users may upgrade for $99. Claris Corp., 1-800-544-8554.

➤ **The Complete PC** announced the **Complete Communicator Gold**, which enhances its current product to include a new V.32 data modem with V.42bis for data throughput up to 38,400bps. The Complete PC Corp., 1983 Concourse Dr., San Jose, CA 95131. (408)434-0145.

➤ **Concentrix Technology** released **Connections 2.1**, an upgrade to its integrated personal information manager for the Macintosh. Registered users can upgrade for $29.95. Concentrix Technology, Inc., 1875 Grant St., Suite 760, San Mateo, CA 94402. (415)358-8600.

➤ **DayStar Digital** is including, for an **unlimited time, software utilities from Connectrix**. All PowerCache adapters for the SE/30, Mac II, IIx, and IIcx will include a copy of MODE32, a demo version of HandOff II, and a HyperCard version of the Macintosh Memory Guide, all from Connectix. DayStar Digital, Inc., 5556 Atlanta Hwy., Flowery Branch, GA 30542. 1-800-962-2077.

➤ **DeltaPoint** released a maintenance for **DeltaGraph Professional for Macintosh 2.01**. This update is available to any registered user at their request. DeltaPoint, Inc., 2 Harris Ct., Suite B1, Monterey, CA 93940. (408)645-4813.

➤ **Everex** announced **price reductions** on most **Tempo Carrier 386SX/20 notebook computers**. Everex Systems, Inc., 48431 Milmont Dr., Fremont, CA 94538. 1-800-821-0806.

➤ **Great American Software**, now **MECA Software**, announced **One-Write Plus v3.0**, a significant upgrade to the entire One-Write Plus product line. New pricing was also announced. MECA Software, Inc., 55 Walls Dr., Fairfield, CT 06430-0912. (203)256-5000.

➤ **Intel** released **LANSight Support 3.0** for Microsoft LAN Manager and IBM LAN Server networks, a server-based troubleshooting tool for day-to-day management of local area networks. Intel PC Enhancement Division, 1-800-538-3373.

➤ **Microsoft** is shipping the **Microsoft Mail Gateway to X.400 v 3.0**. The new release allows Microsoft Mail users to send messages, binary files, and multimedia objects from one LAN to another across an X.400 backbone, using a technique called message encapsulation. Microsoft Corp., 1-800-426-9400.

➤ **SBT** released **SBT Professional Series 2.0**, its new accounting system that was developed in Fox Software's FoxPro 2.0. SBT Corp., One Harbor Dr., Sausalito, CA 94965. (415)331-9900.

➤ **Teleware** announced **M.Y.O.B. for Windows v3.0**Registered users of v2.0 can upgrade for $79 plus shipping and handling. Teleware, Inc., 30 Roundhill Dr., Rockaway, NJ 07866. 1-800-322-MYOB.

➤ **UDS Motorola** released **GlobalView 2.0**, its Windows-based, dial-up modem management system. GlobalView is a graphical network management system that lets a central site operator manage hundreds of dial-up modems from a single console. UDS Motorola, 5000 Bradford Dr., Huntsville, AL 35805-1993. (205)430-8000.

BTC® Computer Products

KEYBOARDS

English
Russain
Spanish
Korean
French
Chinese
Norwegian......

VGA CARDS

Oak 077 1MB
Trident 8900C
Acumos AVGA1
Acumos AVGA2
Realtek 3106
ET 4000

MONITORS

14" Flat Screen TTL
Amber / White
14" Super VGA
.28mm 1024x768

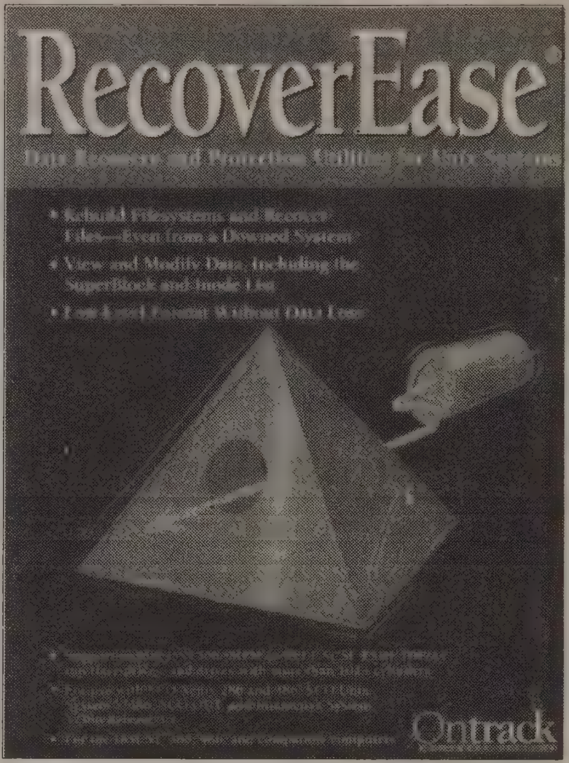
Southern California Exclusive Distributor

REYES
ELECTRONICS
16815 Johnson Drive
City of Industry, CA 91745
(818) 968-2222 Fax (818) 968-1050

For Dealers Only

Special Pricing for System House. We have more than 20,000 Keyboards and 10, 000 Video cards for Immediate Delivery.

PRODUCT SPOTLIGHT


RecoverEase
Data Recovery and Protection Utilities for Unix Systems
• Rebuild Filesystems and Recover Files—Even from a Downed System
• View and Modify Data, Including the SuperBlock and Inode List
• Low-Level Format Without Data Loss
Ontrack

ONTRACK RECOVEREASE FOR UNIX

RecoverEase is a toolbox of data recovery and protection utilities engineered for UNIX systems. It is currently available for use with SCO Xenix, ACO UNIX, SCO ODT, and Interactive System V/386 Release 3.x. Included in the new RecoverEase utilities package is a collection of four expert programs: Scan, Diagnose-N-Analyze, Disk Look, and File Look. Because these utilities run under DOS, they can access data in system too corrupt to book under UNIX or Xenix. ($395) Ontrack Computer Systems, Inc., 6321 Bury Dr., Eden Prairie, MN 55346. 1-800-872-2599.

Continued

K-NET LOCAL BUS Inc.

PERSONAL COMPUTERS & LOCAL AREA NETWORK SPECIALISTS
13017 Artesia Blvd., Suite D-102, Cerritos, CA 90701 • Hours: M-F 10-6:30
(Appointments after hours)

FREE MOUSE!
(w/System Purchase)

K-NET 386-40 MHz 64K CACHE
- 80386-40 MHz CPU
- 4 MB Memory
- 64K Cache Memory
- 130 MB Hard Drive
- TEAC 1.2 & 1.44 MB Floppy Drive
- Floppy/Hard Disk Controller
- 2 Serial/1 Parallel/1 Games
- Deluxe Mini Tower/Desktop Case
- Non-Interlaced SVGA Monitor
- 16 Bit SVGA Card w/1 MB Memory
- 101 Enhanced Keyboard

$1199

K-NET 486-33 MHz 256K CACHE
- 80486-33 MHz CPU
- 4 MB Memory
- 256K Cache Memory
- 130 MB Hard Drive
- 101 Enhanced Keyboard
- Non-Interlaced SVGA Monitor
- 16 Bit SVGA Card w/1 MB Memory
- Deluxe Middle Tower Case
- Floppy/Hard Disk Controller
- 2 Serial/1 Parallel/1 Games
- TEAC 1.2 & 1.44 MB Floppy Drive

$1529

K-NET 486-33 MHz 32 BIT LOCAL BUS
- 80486-33 MHz CPU
- 4 MB Memory
- 256K Cache Memory
- 130 MB Hard Drive
- 101 Enhanced Keyboard
- Non-Interlaced SVGA Monitor
- 32 Bit Local Bus SVGA Card w/1 MB
- Deluxe Middle Tower Case
- Floppy/Hard Disk Controller
- 2 Serial/1 Parallel/1 Games
- TEAC 1.2 & 1.44 MB Floppy Drive

$1619

K-NET 486-50 MHz 32 BIT LOCAL BUS
- 80486-50 MHz CPU
- 4 MB Memory
- 256K Cache Memory
- 130 MB Hard Drive
- 101 Enhanced Keyboard
- Non-Interlaced SVGA Monitor
- 32 Bit Local Bus SVGA Card w/1 MB
- Deluxe FULL Tower Case
- Floppy/Hard Disk Controller
- 2 Serial/1 Parallel/1 Games
- TEAC 1.2 & 1.44 MB Floppy Drive

$1999

NETWORK

NETWORK SPECIAL
1 SERVER & 4 WORKSTATIONS
NOVELL NetWare 2.2/5 Users Included • NOVELL Certified Network Engineer (CNE) In House
*** On-Site Service Available ***

FILESERVER
386-40MHz 64K CACHE
- 4 MB Ram
- 1.2 Floppy Drive
- 130 MB Hard Disk
- 8 Bit Arcnet Card
- Middle Tower Case
- Mono Monitor
- 101 Keyboard

$3975
PLEASE CALL FOR OTHER OPTIONS!

4 WORKSTATIONS
386SX-25 MHz
- 1 MB Ram
- 1.2 Floppy Drive
- 8 Bit Arcnet Card
- Mini Tower Case
- Mono Monitor
- 101 Keyboard

NETWORK PLUG & PLAY
**25 Feet Coaxial Cable
** 2 Network Cards
** 2 Copies of NOVELL NetWare Lite™

8 Bit Arcnet	$258
16 Bit Arcnet	$298
8 Bit Ethernet	$328
16 Bit Ethernet	$388

UPGRADE

S3 Accelerator SVGA Card .....+
IDE Cache Controller w/1 MB ...+
130 to 200 MB Hard Disk.......+
DOS 5.0 or Windows 3.1........+
Fax/Modem....................+

GENERAL INFORMATION:
Please call for prices and configurations not listed. Ask about our NOVELL networking products & service contracts. All systems carry 1 year labor & 1 year parts limited warranty. Prices subject to change without notice. 15-day money back guarantee w/15% restocking fee on non-defective parts.

TEL: (310) 926-7512 • FAX: (310) 926-0501

The difference between their prices and ours is simply too great to ignore. No wonder we've been around

SINCE 1984

"experts in portable intelligence"

PRICES COULD BE LESS BY THE TIME YOU READ THIS AD, SO PLEASE CALL FOR OUR MOST CURRENT PRICES

TOSHIBA MEMORY

T1000SE, T1000LE, T1000XE, T2000, T2000SX, T2000SXE, T2200SX

2MB..$ 77
4MB..$156
8MB..$334

*ALL CARDS ARE FAST 70ns

UPGRADED NOTEBOOKS

AST COLOR EXEC 386SX/25C 120MB W/ 8MB RAM	$3704
AST COLOR EXEC 386SX/25C 80MB W/ 8MB RAM	$3264
AST COLOR EXEC 386SX/25C 60MB W/ 8MB RAM	$3000
AST PREMIUM EXEC 386SX/25 120MB W/ 8MB RAM	$2725
AST PREMIUM EXEC 386SX/25 80MB W/ 8MB RAM	$2285
AST PREMIUM EXEC 386SX/25 60MB W/ 8MB RAM	$2021
EVEREX TEMPO/LX 60MB W/ 5MB RAM	$1952
EVEREX TEMPO/LX 120MB W/ 5MB RAM	$2084
SHARP PC-6340/40MB W/ 2MB RAM	$1298
SHARP PC-6700/120MB W/ 8MB RAM	$2842
SHARP PC-6781/80MB W/ 8MB RAM	$2372
TOSHIBA T2200SX/80MB W/ 10MB RAM	$2527
TOSHIBA T3300SL/120MB W/ 8MB RAM	$3074
TOSHIBA T4400SX/120MB LCD W/ 10MB RAM	$3646
TOSHIBA T4400DX/120MB LCD W/ 10MB RAM	$3985
TOSHIBA T4400SX/120MB PLASMA W/ 10MB RAM	$3908
TOSHIBA T4400DX/120MB PLASMA W/ 10MB RAM	$4227
TOSHIBA T4400SXC/120MB COLOR W/ 12MB RAM	$5479
TOSHIBA T4400DXC/120MB COLOR W/ 12MB RAM	$5798
TOSHIBA T6400SX/120MB W/ 20MB RAM	$5070
TOSHIBA T6400SX/120MB COLOR W/ 20MB RAM	$7512

LAPTOP/NOTEBOOK MEMORY

APPLE POWERBOOK 140/170 2/4/6MB.	$103/$180/$246	
AST PREMIUM EXEC 4MB (70ns LP)	$120	*WOW!*
COMMODORE CLT286/386 2MB (70ns LP)	$88	
COMPAQ LTE /386s, LITE/20, LITE/25 1MB/4MB	$98/$198	*WOW!*
COMPAQ LITE/20 & LITE/25 8MB	$386	*NEW!*
COMPAQ SLT/286 4MB	$328	
COMPAQ SLT/386S 4MB	$218	
COMPUADD COMPANION/SX 2MB (70ns)	$58	
EVEREX TEMPO/LX 2MB/4MB (70ns LP)	$88	
GRID 1720/1750 2MB	$88	
IBM L40SX 2MB/4MB/8MB (70ns LP)	$98/$158/$290	
IBM N33SX 2MB/4MB (70ns LP)	$98/$158	
IBM CL57SX 4MB/8MB (70ns LP)	$288/$540	*NEW!*
IBM N51SX/N51SLC 2MB/4MB/8MB	$CALL	*NEW!*
MAGNAVOX METALIS 286/386SX 4MB	$238	*NEW!*
NEC ULTRALITE 286F 4MB	$208	
PANASONIC CF170/270/370 1MB/2MB	$58/$88	
SANYO MBC -17NB/18NB 2MB (70ns LP)	$88	
SHARP PC-6600/6641/6661 2MB (70ns)	$58	
SHARP PC-6700/6781/6800/6881 2/4MB (60ns LP)	$CALL	*NEW!*
SHARP PC-8501 COLORSTAR 2MB	$119	
TANDY 1500HD 1MB	$58	
TANDY 2810HD/3810HD 2MB	$88	
TI TRAVELMATE TM3000 2MB (70ns).	$58	
TOSHIBA T1200XE 2MB	$78	*WOW!*
TOSHIBA T1600/3100E /T5100 2MB UPGRADE	$88	
TOSHIBA T3100SX/T3200SX 2MB/4MB	$88/$148	*WOW!*
TOSHIBA T3300SL 2MB/4MB/8MB	$126/$175/$340	
TOSHIBA T4400/T6400 2MB/4MB/8MB	$148/$216/$420	
ZEOS 286/386SX NOTEBOOK 2MB (70ns)	$88	
ZENITH MASTERSPORT SX/SL/SLE /SLC 2MB (70ns)	$88	*WOW!*

PALMTOP/SRAM MEMORY

DEC PALMTOP 512K/1MB/2MB	$128/$198/$398
GRID GRIDPAD 512K/1MB/2MB	$128/$198/$398
HP 95LX 512K/1MB/2MB	$128/$198/$398
IBM PC RADIO 512K/1MB/2MB	$128/$198/$398
MOMENTA PENTOP 512K/1MB/2MB	$128/$198/$398
NCR 3125 NOTEPAD 512K/1MB/2MB	$128/$198/$398
POQET 512K/1MB	$128/$198
SHARP PC3000/3100 512K/1MB/2MB	$128/$198/$398
SHARP PC6700/6741/6781 512K/1MB/2MB	$128/$198/$398
SHARP PC6800/6841/6881 512K/1MB/2MB	$128/$198/$398
TOSHIBA T3300SL 512K/1MB/2MB	$128/$198/$398

LASER PRINTER MEMORY

APPLE LASERWRITER II/NT/IINTX 4MB	$188	
BROTHER HL-4/4V/4VPS 2MB/3MB/4MB	$138/$178/$208	
BROTHER HL-8E/8D/8V 2MB UPGRADE	$138	
CANON LBP 8II/8IIR/8IIT 2MB/4MB	$118/$198	
C. ITOH-8 2MB/4MB UPGRADE	$128/$208	
EPSON ACTION LASER PLUS 2MB/4MB	$128/$208	
EPSON ACTION LASER II 2MB/3MB/5MB	$118/$168/$258	
EPSON EPL-4100 /6000 2MB/3MB/5MB	$118/$168/$258	
EPSON EPL-6000 2MB/4MB UPGRADE	$128/$208	
EPSON EPL-7000 2MB/3MB UPGRADE	$128/$168	
FACIT P6060 2MB/4MB UPGRADE	$128/$208	
HP LASERJET II/IID 2MB/4MB UPGRADE	$118/$198	
HP LASERJET IIP/IIP+/III/IIID/IIIP 2/3/4MB	$108/$148/$188	
HP LASERJET FAX 1MB/2MB/3MB/4MB	$78/$118/$158/$188	
HP LASERJET IIISi 1MB/4MB UPGRADE	$88/$178	
HP DESIGN JET PLOTTER 1MB/4MB UPGRADE	$88/$178	
HP DESKJET+/500/500C 256K UPGRADE	$58	
IBM/LEXMARK 4019/E 2MB/3.5MB	$118/$178	
IBM LEXMARK 4029 (ALL MODELS) 2MB/4MB	$108/$158	
KYOCERA F800/800A/800T 2MB/4MB	$138/$218	
KYOCERA F1200S 2MB/3MB/4MB	$158/$198/$238	
KYOCERA F3300/3300A 2MB/3MB/4MB	$158/$198/$238	
MANNESMANN TALLY 905 2MB/4MB	$128/$208	
NEC SILENTWRITER 2 MO DEL 90/290 /S60/S60P 2MB	$138	
NEC SILENTWRITER 2 MODEL 95 2MB	$118	*NEW!*
NEC SILENTWRITER 2 MODEL S62P 2MB	$118	*NEW!*
OKIDATA OKILASER/400 2MB UPGRADE	$118	
OKIDATA OKILASER 800/820 2MB/3MB/4MB	$138/$178/$208	
OKIDATA OKILASER 830/840 2MB UPGRADE	$158	
OLIVETTI PG-108/208 2MB/4MB UPGRADE	$118/$198	
PACKARD BELL PB-9600 2MB/4MB UPGRADE	$128/$208	
PANASONIC KX-P4410/4430 2MB/3MB/4MB	$148/$188/$228	
PANASONIC KX-P4420/4450i 2MB/3MB/4MB	$118/$158/$198	
PANASONIC KX-P4450 1MB UPGRADE	$118	*NEW!*
PANASONIC KX-P4451 2MB/3MB/4MB	$118/$158/$198	
PANASONIC KX-P4455 2MB UPGRADE	$138	
QMS PS410 2MB/3MB/4MB UPGRADE	$138/$178/$208	
QMS PS815/825 2MB/4MB/6MB UPGRADE	$158/$238/$318	
QMS PS1700 1MB/4MB UPGRADE	$88/$178	
SHARP JX-9500/9700 1MB/2.5MB/4MB	$108/$208/$338	
SHARP X-9500PS POSTSCRIPT 1MB UPGRADE	$58	
STAR LASER PRINTER 8 2MB/4MB UPGRADE	$148/$188	
STAR /STARCRIPT 4/4III 2MB/4MB UPGRADE	$148/$238	
TEC 1305B 2MB/4MB UPGRADE	$128/$208	
TI MICROLASER/PLUS/17/TURBO/XL 1MB	$58	
TOSHIBA PAGELASER6 2MB/4MB UPGRADE	$128/$208	
UNISYS AP9210 2MB UPGRADE	$118	

NOTE: IN THE VERY SLIM CHANCE THAT YOU DO FIND A BETTER PRICE ON ANY MEMORY UPGRADE, PLEASE LET US KNOW.

SHARP PC-6220

80286 4 LB. NOTEBOOK

20MB HD W/ 3MB	$ 650
40MB HD W/ 3MB	$ 800
60MB HD W/ 3MB	$ 850
80MB HD W/ 3MB	$ 990
120MB HD W/ 3MB	$1,120

SHARP PC-6781

80MB HDD W/ 8MB	*$2372*
120MB HDD W/ 8MB	*$2842*

WE ARE LISTED IN THE TOSHIBA TECHNICAL INFORMATION GUIDE AS "THE LEAST EXPENSIVE MEMORY MANUFACTURER APPROVED FOR TOSHIBA LAPTOPS AND NOTEBOOKS" !!!

TOSHIBA T5200/T8500
2MB/8MB $88/$298

TOSHIBA T1200XE
2MB $78

$78
1MB RAM UPGRADE
SHARP PC-6220
TI TRAVELMATE TM2000
COMPUADD COMPANION

HDD UPGRADES

40MB	$255
60MB	$309
80MB	$510
120MB	$696

EVERYONE ELSE CLAIMS THEY WILL BEAT ANY PRICE. WE DON'T EVEN CLAIM IT. INSTEAD, WE JUST DO IT. AND THEIR SHEER AUDACITY TO CLAIM THAT THEY "WON'T BE UNDERSOLD." YOU BE THE JUDGE !

TOSHIBA T5200
200MB HDD UPGRADE
$798

ALL MEMORY UPGRADES COME WITH A LIFETIME WARRANY & A 48 HOUR EXCHANGE GUARANTEE !

HDD UPGRADES

ASK US ABOUT HARD DRIVE UPGRADES, UP TO 200MB, FOR YOUR BRAND OF LAPTOP OR NOTEBOOK,

SE HABLA ESPANOL
pregunte por Hector

tote-a-lap

550 Pilgrim Drive , Ste.F, Foster City, CA 94404
PHONE : (415)578-1901 FAX: (415)578-1914
ORDERS ONLY : 1-800-9-LAPTOP
(PRIOR APPOINTMENTS ARE NEEDED FOR WILL-CALLS, PLEASE)

TERMS AND CONDITIONS: All sales final. We charge a 25% re-stocking fee on all refused shipments and pre-approved returns. Prices are subject to change w/out notice, and reflect all cash discounts. Warranty on all merchandise, except memory upgrades, is thru the original manufacturer only, unless previously agreed upon and stated on our invoice. All software, plus all merchandise that include a rom bios, are not returnable for credit, and are subject to an even exchange only. We accept purchase orders from credit-worthy institutions, although prices may be slightly higher on some items. We will not ship to any account with an overdue balance. Purchase prices at the time of sale are final. Memory upgrades guaranteed 100% compatible.

The Reviewers Agree. . PC Sources

"...a formidable amount of computing power for the price."

"...a steady performer no operational difficulties."

"In every case the Royal has accepted whatever hardware & software I installed without a whimper."

"I was so excited with the quality that I loaded half the family picture album...the Royal displayed each and every image in a crisp, sharp manner."

[illegible]	
286 20 MHz	$80
386SX 25MHz	125
386DX 25MHz	150
386DX 33MHz 64K w/CPU	175
386DX 40MHz 64K w/CPU	185
486SX 20MHz w/CPU	210
486SX 25MHz w/CPU	245
486DX 33MHz 64K w/CPU	510
486DX 50MHz 64K w/CPU	690
486DX2 50MHz 256K w/CPU	790
EISA 486DX 33MHz 64K w/CPU	865
EISA 486DX2 50MHz 64K w/CPU	1210
EISA 486DX 50MHz 256K w/CPU	1325

[illegible]	
Teac 1.2MB	$56
Teac 1.44MB	55
Teac 2.88MB	130
Teac 1.2MB/1.44MB on One	185
42MB IDE Drive	205
85MB IDE Drive 64K	265
125MB IDE Drive 64K	325
210MB IDE Drive 64K	490
245MB IDE Drive 128K	575
340MB IDE Drive 64K	870
510MB IDE Drive 64K	1065
1.2GB IDE Drive 15MS	1840
210MB SCSI Drive 15MS	345
340MB SCSI Drive 15MS	950
670MB SCSI Drive 15MS	1380
1.2GB SCSI Drive 15MS	1950

CONTROLLERS	
IDE 2FD/2HD W/1MB	$399
IDE 2FD/2HD	18
IDE 4FD/2HD	35
IDE W I/O	25
MFM for XT	48
MFM 2FD/2HD(AT)	50
MFM 2FD/2HD(AT)	55
RLL for XT	53
RLL 2FD/2HD(AT)	60
RLL 4FD/2HD(AT)	65
SCSI UltraStore W 32K	189
EISA UltraStore 32 Bit	750
SCSI Adaptec W 32K	245
SCSI Adaptec W 64K	345

[illegible]	
AT I/O (2S, 1P, 1G)	$18
RS 235 Single	12
RS 232 Dual	15
Second Parallel Port	12
Game Ports	12
Clock Car	12
Multi I/O for XT	35

KEYBOARDS	
Generic 101 Key	$25
Focus 2001	43
Focus 5001	63
Focus 9000 Programmable	75
Keytronic 101 Key	45
Fujitsu 101 Key	45
Chicony 101 Key	40
124 Key Programmable	99
Northgate 101 Key	55

[illegible]	
VGA 640 X 480	$235
SVGA 1024 X 768 .28 Dot	275
SVGA 1024 x 768 .28 Dot Non Int	320
Mono VGA Monitor	130
Mono 14' Monitor	105
View Sonic 6E	330
View Sonic 5E	430
View Sonic 7	1100
View Sonic 8	1780
MX15F Mag Monitor	605
MX17F Mag Monitor	1175
IDK 5117 50 KHz	890
IDK 5217 57 KHz	950
IDK 5317 65 KHz	1150
IDE 5221A 80 KHz	2095
IDE 5321A 80 KHz	2265
IDE 5421A 80 KHz	2495

[illegible]	
MGP	$18
CGA	23
SVGA 256K 16 Bit	38
SVGA 172K 16 Bit	53
SVGA 1MB 16 Bit	68
SVGA 1MB Hi Color	99
Tseng Lab SVGA 1MB	99
Tseng Lab SVGA 1MB Hi Color	129
32 Bit Local Bus SVGA	145
Orchid ProDesigner IIs	180
Orchid Fahrenheit	275
Diamond Speed Star Hi Color	145
Diamond Speed Star 24 Bit Hi Color	175
Diamond Stealth Hi Color	245
ATI Graphix Ultra 1MB	445
ATI Graphix Vantage	275

[illegible]	
2400B Internal W/ WinFax	$50
2400B External Modem	65
96/24 Internal W/ WinFax	95
96/24 External Fax Modem	125
9600B Internal Modem	255
9600B External Modem	280
14.4KB Modem W/9600B Fax	460
200 Watt UPS	220
600 Watt UPS	480
900 Watt UPS	680
Printer Cable	Call
Sound Blaster	115
Sound Blaster Pro	215
Tape Backup 120MB	195
Tape Backup 250MB	280

[illegible]	
Ethernet 16 Bit Genesis	$110
Ethernet 16 Bit Novell	179
Ethernet 32 Bit Mylex	[illegible]
Ethernet 32 Bit Novell	[illegible]
Artisoft AE-2 Starter Kit	[illegible]
Artisoft AE-2 Adapter	220

Join 1,000s of satisfied customers - Like: • S.C.E • Alaska Animal Controls • Bear Medical • USC Medical Center • UCLA Engineering Dept. • GTE • US Air Force AFFTC • Unisys • County of Los Angeles • California Polytechnical • City of Azusa & More...

Networking

We Support Lantastic and Novell Network Installation

FAST!
32 Bit S3 RAM
& 32 Bit Controller
Local Bus
SPECIAL
CALL

486/33 MHz	**$1945**
386/33 MHz	**$2035**
386SX/25 MHz	**$1945**

(No Cache)

Notebook

- 4 MB
- 8K Cache Memory (486/33)
- 32K Cache Memory (386/33)
- 1.44 MB 3.5' Floppy Drive
- 120 MB 28ms IDE Drive
- Chargeable Ni-Cad Battery
- 81 - Key Keyboard
- 2 Serial, 1 Parallel Ports
- VGA Port for External Color
- LCD 640 x 480 Backlit VGA
- Carrying Bag & A/C Adapter

Add $185 for Fax Modem
$135 for 2400 Modem
$ 85 Ext Battery
$50 Ext Adapter
$50 per MB
$250 for Docking Station

486/50 MHz	**$3020**
486/50 MHz DX2	**$2960**
486/33 MHz	**$2670**

EISA Station

- 256K Cache RAM
- 8 MB RAM (70ns)
- 1.2 MB 5.25' Floppy Drive
- 1.44 MB 3.5' Floppy Drive
- 210 MB 15ms SCSI Drive
- 32 Bit SCSI Controller
- Super VGA 1MB Video Card
- 14' Color SVGA Monitor
- 2 Ser, 1 Par & 1 Game Port
- Enhanced 101 Keyboard
- Desktop or Vertical Case

CAD Station:

Add $1170 for 12'x12' Digitizer w/ 16 Buttons, 17' SVGA (1280x1024) Monitor, SpeedStar 24 Bit Video, 16.2 Million Colors on Windows.

486/50 MHz	**$1730**
486/50 MHz DX2	**$1670**
486/33 MHz	**$1450**
486/25 MHz SX	**$1190**

(No Cache)

- 64K Cache RAM
- 4 MB RAM (70ns)
- 1.2 MB 5.25' Floppy Drive
- 1.44 MB 3.5' Floppy Drive
- 130 MB 15ms IDE Disk
- Super VGA 1 MB Video Card
- 14' Color SVGA Monitor
- 1 Parallel, 2 Serial & 1 Game Port
- Enhanced 101 Keyboard
- Desktop or Vertical Case

Add $250 for 210 MB HD

486/50 MHz	**$1810**
486/50 MHz DX2	**$1750**
486/33 MHz	**$1540**

Local Bus Station

- 64K Cache
- 4 MB RAM (70ns)
- 1.2 MB 5.25' Floppy Drive
- 1.44 MB 3.5' Floppy Drive
- 130 MB 18ms IDE Drive
- 32 Bit Super VGA 1MB Video Card (25x faster than Standard SVGA Card)
- 14' Color SVGA Monitor
- 2 Ser, 1 Par & 1 Game Port
- Enhanced 101 Keyboard
- Desktop or Vertical Case

WIN Station:

Add $450 for 210MB 15ms IDE, 32 Bit IDE Controller (17x faster than 16 bit) 32 Bit S3 VRAM Video Card (50x faster that 16 Bit)

386/40 MHz	**$1090**
386/33 MHz	**$1070**
386/25 MHz SX	**$1020**

(No Cache)

- 64K Cache RAM
- 4 MB RAM (70ns)
- 1.2 MB 5.25' Floppy Drive
- 1.44 MB 3.5' Floppy Drive
- 85 MB 18ms IDE Drive
- Super VGA 1 MB Video Card
- 14' Color SVGA Monitor
- 2 Ser, 1 Par & 1 Game Ports
- Enhanced 101 Keyboard
- Desktop or Vertical Case

Add $60 for 130 MB HD
$250 for 210 MB HD

NEC ORCHID NANAO NOVELL SONY Diamond ARTISOFT

- All Systems Carry a One Year Parts & Labor Warranty
- 14 Day Money Back Guarantee
- 72 Hour Burn-in Time Before Shipping
- Leasing and Financing Available
- Prices Subject to Change Without Notice

Quality Computers, Inc.

13001 Ramona Blvd., #C,
Irwindale, CA 91706
(818) 960-1933

Business Hours
Monday - Friday 9:00-6:00
Saturday 10:00 - 4:00

NOVELL
CALL
(818)
960-
1933

Royal Computer

1201 John Reed Ct.
City of Industry, CA 91745
(818) 333-7628

Business Hours
Monday- Friday 7:30-6:00
Saturday 7:30-5:00

Terms and Conditions: Personal and Company checks allow two weeks to clear. All UPS shipping charges are not refundable.

Our Pub Moderators know their stuff.

Dean 1241, our "Travel and Adventure" Pub Moderator

KBBS
BULLETIN BOARD

Shareware - Live Chat - Discussion Forums - GIFs - Matchmaking - Social Events

via Modem: 818/886-0872 310/558-0145 213/722-2207 805/520-7323

ACS' MOTTO: QUALITY FIRST!
"When you're out of quality, you're out of business"

386 & 486 SUPER COLOR VGA COMPLETE SYSTEMS

- 486DX2-50MHz/256KB Cache .... ONLY $1795
- 486DX-33MHz/256KB Cache .... ONLY $1595
- 386DX-33/40MHz w/128KB Cache .... ONLY $1265
- 386DX-25MHz .... ONLY $1195

ALL SYSTEMS INCLUDE:

- 4MB OF RAM INSTALLED (70NS)
- MOTHERBOARD/CPU/AMI BIOS • SUPER VGA COLOR MONITOR 14" HI-RES (1024X768) (.28DPI)
- SUPER VGA CARD W/1MB VIDEO RAM • 130MB HARD DRIVE (15ms) •1.2 & 1.44MB FLOPPY DRIVE TEAC • DELUXE MINI CASE & POWER SUPPLY
- 101 ENHANCED KEYBOARD (FUJITSU)
- 2 SERIAL/1 PARALLEL/GAME PORT

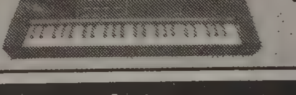
ALSO AVAILABLE:

- 386SX-25MHz w/2MB of DRAM .... ONLY $1095

All systems include 1 year parts & labor warranty

Windows 3.1
DOS 5.0
with Mouse
ONLY $69
w/ System Purchase

Teach your family to play music! Add the miracle piano teaching system to your PC ...Just $345
Includes Software & Full 49 Key Piano Keyboard!!



ACS Advanced Computers

TWO LOCATIONS TO SERVE YOU:
- 1714 E. McFadden Ave., Suite D, Santa Ana, CA 92705
TEL: (714) 648-0325 • FAX: (714) 648-0326
- 21164 Hawthorne Blvd., Torrance, CA 90503
TEL: (310) 214-8125 • FAX: (310) 371-7388

Hours: Mon.-Sat. 10am to 7pm

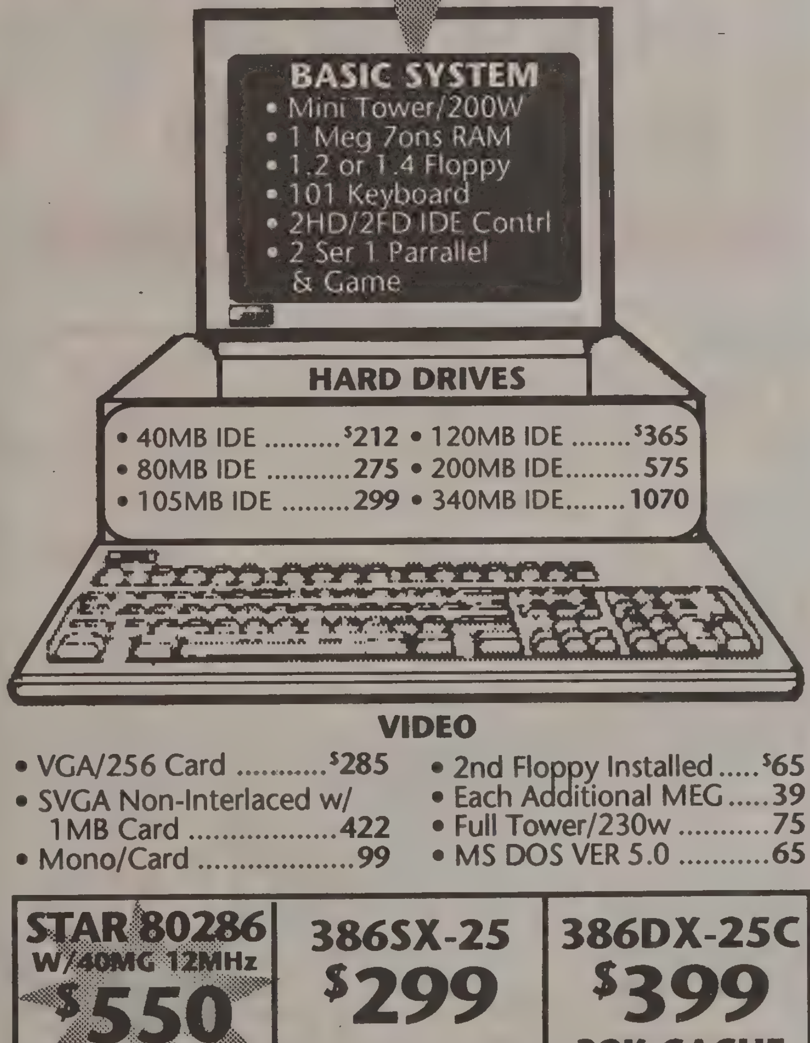
VISA MasterCard

- Credit Card Use No Extra Charge
- Instant Credit
- Financing Available
- Limited Stock

AT STAR SYSTEM,

WE OUTSHINE OUR COMPETITORS

★ **2 YEAR WARRANTY**
★ **FAST REPAIR:**
clones, compatibles & namebrands
Call for details!
★ **ASK ABOUT OUR BUSINESS LEASING PLAN!**



BASIC SYSTEM
- Mini Tower/200W
- 1 Meg 7ons RAM
- 1.2 or 1.4 Floppy
- 101 Keyboard
- 2HD/2FD IDE Contrl
- 2 Ser 1 Parrallel & Game

HARD DRIVES

40MB IDE	$212	120MB IDE	$365
80MB IDE	275	200MB IDE	575
105MB IDE	299	340MB IDE	1070

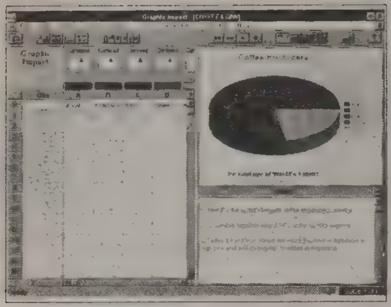
VIDEO

VGA/256 Card	$285	2nd Floppy Installed	$65
SVGA Non-Interlaced w/ 1MB Card	422	Each Additional MEG	39
Mono/Card	99	Full Tower/230w	75
		MS DOS VER 5.0	65

STAR 80286 W/40MG 12MHz $550 COMPLETE	386SX-25 $299	386DX-25C $399 32K CACHE
386DX-40C $435 128K Cache	486DX-33C $875 256K Cache	486DX-50C $1249 256K Cache

STAR SYSTEM TECHNOLOGY
4547 W. ROSECRANS AVE. HAWTHORNE
PH. (310) 675-5303
FAX (310) 675-0864

PC SOFTWARE

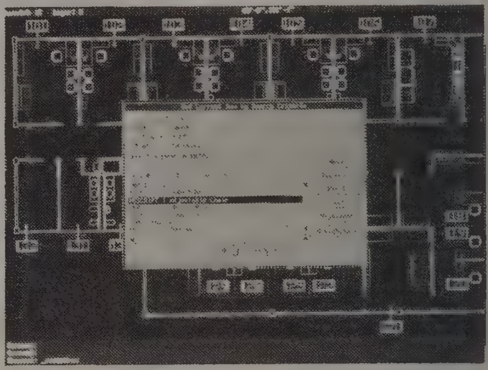


AUTODESK GRAPHIC IMPACT FOR WINDOWS

Graphic Impact, a new Windows-based software package from Autodesk, allows busy professionals to create high-quality business presentations almost immediately. When you are creating a presentation with Graphic Impact, everything you are doing is visible on the screen at all times. The package uses a split screen that allows you to input data or text into a worksheet on the left of the screen and see it integrated into a chart or text display in real time on the other side of the screen. A slide sorter displays thumbnail views of each presentation slide so you can conveniently add, delete, and rearrange slides right on the screen. ($149) Autodesk Retail Products, 11911 N. Creek Pkwy., S. Bothell, WA 98011. 1-800-228-3601.

AUTOCAD RELEASE 12

AutoCAD Release 12 speeds and simplifies the most frequently used CAD operations, increasing user productivity. In all, Release 12 has 174 enhancements, including improved plotting, an easier-to-use interface, support for SQL and PostScript data exchange, integrated rendering, enhanced drawing tools, and bi-directional compatibility with AutoCAD Release 11. Almost every major AutoCAD command can now be accessed by a dialogue box. Release 12 also allows users and developers to design their own dialogue boxes through AutoLISP and ADS. Release 12 is available for both DOS 386 and Sun SPARCstations. ($3750) Autodesk, Inc., 2320 Marinship Way, Sausalito, CA 94965. (415)332-2344.



KNOWLEDGEPOINT DESCRIPTIONSWRITE NOW!

DescriptionsWrite Now! custom-writes complete job descriptions. Managers and business owners can create thorough job descriptions that facilitate every phase of employment, from recruitment to performance reviews. The DescriptionsWrite Now! Job Library includes job duties for more than twenty-four thousand job titles. It also includes a built-in editor and can import and export text. There is a unique question-and-answer process that custom-writes legally appropriate language for the job's supervisory responsibilities, qualifications, physical demand, and work environment. In addition to improving the employment process, this information helps employers comply with the Americans With Disabilities Act and other employment laws. ($149) KnowledgePoint, Inc., 1311 Clegg St., Petaluma, CA 94954-1191. 1-800-727-1133.

continued on page 96

SVGA MONITOR NON-INTERLACED
SHAMROCK $199* SHAMROCK
$AVE 3%! USE CASH OR CHECK!
Monthly Special! FREE MOUSE w/ any System Purchase!!
486-50MHz (w/1MB) . . $1419
486-33MHz (w/1MB) . . . $999
486SX-20MHz (w/1MB). $879
386-40MHz (w/1MB) . . . $679
386-33MHz (w/1MB) . . . $659
386-25MHz (w/1MB) . . . $619
386SX-25MHz (w/1MB). $559
386SX-16MHz (w/1MB). $549
286-20MHz (w/1MB) . . . $319
CALL FOR OTHER SYSTEM CONFIGURATIONS!
TWO YEARS LABOR/ ONE YEAR PARTS WARRANTY
AUTHORIZED DEALER FOR
☑ PICK HARDWARE & SOFTWARE SPECIALISTS
☑ digital
☑ ALPHA MICROSYSTEMS
☑ USRobotics The Intelligent Choice in Data Communications
☑ Sankyo
☑ MICRONICS COMPUTERS INC
☑ DigiBoard
CALL US AT WESTERN MICRO!
ALL REGISTERED TRADEMARKS BELONG TO THEIR RESPECTIVE OWNERS
intel inside
ALL SYSTEMS ABOVE INCLUDE
■ Motherboard & CPU ■ 1.2MB Or 1.44MB Floppy Drive ■ Internal Clock/Calendar ■ 2 Serial/1 Parallel/1 Game ■ Enhanced Case ■ IDE/Floppy Controller ■ Math Coprocessor Socket ■ 200W Power Supply ■ 101 Key Enhanced Keyboard
HARD DRIVES OPTION
85MB IDE $329
105MB IDE $387
125MB IDE $419
170MB IDE $569
210MB IDE $679
MONITOR & CARD OPTION
TTL MONO $119
MONO VGA $186
VGA $371
SVGA $422
MULTISYNC $484
MISCELLANEOUS
FAX/MODEM 9600/2400 . . . . $99
Modem 2400 Baud $61
Memory SIMMS . . . . $39 p/MB
Mouse $30
Tape Back Up 250 MB $329
Trident 8900 w/1MB $79
1.44 Or 1.2 MB Floppy $61
Cases . . . . CALL
Motherboards . . . . CALL
Hi-Speed Modems . . . . CALL
Hi-Speed ¼" SCT . . . . CALL
CALL FOR QUANTITY DISCOUNTS
PRICES SUBJECT TO CHANGE W/OUT NOTICE
western MICRO
TEL: (714) 692-1774
FAX: (714) 692-0170
22343 La Palma Ave.
Suite 120
Yorba Linda, CA 92687
DISCOVER
Wholly Owned Subsidiary of A.A.C.P., Inc.
*With complete system purchase.

PC MAGAZINE EDITORS' CHOICE

PC MAGAZINE EDITORS' CHOICE
March 26, 1991
Idek MF-5117

IDEK's MULTIFLAT Series of 17-Inch Color Monitors

FREE!!!
Speed STAR 24 Bit
True Color VGA Board
w/the purchase of
IDEK MF-5217
17" Color Monitor

IDEK

MULTIFLAT Series (17" Flat CRT Monitors)

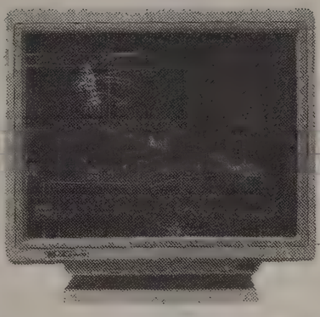
Model	H. Frequency	Dot	Resolution
MF-5017	15 to 40kHz	.31	1024 x 768
MF-5117	20 to 50kHz	.28	1024 x 768
MF-5217	30 to 57kHz	.28	1024 x 768
MF-5317	30 to 65kHz	.28	1280 x 1024

MULTIFLAT Series (21" Flat CRT Monitors)

Model	H. Frequency	Dot	Resolution
MF-5021	15 to 38kHz	.31	1024 x 768
MF-5121A	22 to 65KHz	.31	1280 x 1024
MF-5221A	30 to 80kHz	.31	1280 x 1280
MF-5321A (A/R Panel)	30 to 80kHz	.31	1280 x 1280
MF-5421A (A/R Panel)	30 to 80kHz	.26	1600 x 1280

IDEK also offers its MULTIFLAT Series of 21-inch Flat Screen Color Monitors that deliver the same superior resolution and performance as the other members of the IDEK lineup.

IDEK
iiyama



SPEEDSTAR™

STEALTH VRAM

HELIO

TURBOCOLOR 1280 — 256

#9GXi & GXi lite
Video 7 SPEA 1280

386SX 25 MHz
40 MB HARD DISK

- 386SX-25 MHz & AMI BIOS
- 4 MB (80ns) Exp. To 8 MB
- Socket For 387SX
- 1.2 & 1.44 MB Floppy Drive
- 40 MB Hard Disk (28ms)
- 2 Serial, 1 Parallel, 1 Game
- Enhanced 101 Keyboard
- Mini Tower Case & 200W PS
- Super VGA Monitor & Card (16 Bit VGA, .28 Dot 1024x768)

$1050

VIDEO & MONITOR UPGRADE

#9GXi & GXi lite

Model		Price
GXi	Level 24 1280x1024 256 Color (WIN)	$1210
	Level 25 1280x1024 256 Color (CAD)	$1510
GXi tc	Level 29 1280x1024 65,536 Color	$1995
GXi lite	Level 20 1280x1024 16 Color (WIN)	$595
	Level 21 1280x1024 16 Color (CAD)	$695

VIDEO 7 SPEA 1280

SPEA 1280x1024 256 or 16 From 16.7 Million-Palette $1799

HELIO TURBOCOLOR 1280

TC 16 (s3)	1280x1024 16 Color Non-Interlace	$350
TC 256 (s3)	1280x1024 256 Color Non-Interlace	$499
TC 256 (s3)	EISA Same As Above [TC 256 (s3)]	$699

DIAMOND SPEED STAR & STEALTH

Stealth Vram 1MB (s3)	$245
Speed Star 24 Bit Color 1MB	$185
Speed Star Hi-Color 1MB	$160

IDEK-MULTIFLAT SERIES (17" & 21")

MF-5117 (20 to 50KHz, .28, 1024x768)	$855
MF-5217 (30 to 57KHz, .28, 1024x768)	$999
MF-5317 (30 to 65KHz, .28, 1280x1024)	$1155
MF-5121A (22 to 65KHz, .31, 1280x1024)	$1895
MF-5221A (30 to 80KHz, .31, 1280x1280	$2095
MF-5321A (30 to 80KHz, .31, 1280x1280)	$2265
MF-5421A (30 to 80KHz, .26, 1600x1280)	$2495

386 25 MHz
85 MB HARD DISK

- 386-25 MHz & AMI BIOS
- 4 MB (80ns) Exp. To 16 MB
- Socket For 387 or 3167
- 1.2 & 1.44 MB Floppy
- 85 MB Hard Disk (15ms)
- 2 Serial, 1 Parallel, 1 Game
- Enhanced 101 Keyboard
- Mini Tower Case & 200W PS
- Super VGA Monitor & Card (16-Bit-1 MB, .28 Dot 1024x768)

$1100

VISA ONE YEAR LIMITED PARTS AND LABOR WARRANTY MasterCard

386 40 MHz
64K CACHE
120 MB HARD DISK

- 386DX-40 MHz & AMI BIOS
- 4 MB (80ns) Exp. To 16 MB
- Socket For 387 Or 3167
- 64K Cache
- 1.2 MB & 1.44 MB Floppy Drive
- 120 MB Hard Disk (15ms)
- 2 Serial, 1 Parallel, 1 Game
- Enhanced 101 Keyboard
- Mid-Sized Tower Case & 220W PS
- Super VGA Monitor & Card (16-Bit-1 MB, .28 Dot 1024x768)

$1225

2 CONVENIENT LOCATIONS

COMPUTER CONCEPT

15428 E. VALLEY BLVD.
CITY OF INDUSTRY, CA 91746
TEL: (818) 333-8627
FAX: (818) 961-6198

FLEXCOM, INC.

2634 S. HARBOR BLVD.
SANTA ANA, CA 92704
TEL: (714) 641-9674
FAX: (714) 641-9642

HOURS:
Mon.-Fri.: 9:30-6:30 Saturdays: 10:00-5:00

486 33 MHz
256K CACHE
130 MB HARD DISK

- 486DX-33 MHz & AMI BIOS
- **Dual 32 Bits Local Bus Slot**
- 4MB (70ns) Exp. to 32MB
- Socket for Weitek "4167"
- Dual FD & HD Controller (1-1)
- 256K Cache
- 1.2 & 1.44MB Floppy Disk
- 130MB Hard Disk (15ms)
- AT I/O 2S, 1P, 1G Ports
- Enhanced 101 Keyboard
- Mid Tower & 220W PS
- SP-VGA Monitor & Card (1MB) (Speed Star Hi Color 1MB)

$1699

486/50 MHz ....add $400

CITIZEN Tandon AST EPSON intel EVEREX

YOUR FINAL SOURCE FOR

AT 286 12MHZ/BAREBONES

- MINI TOWER CASE
- 12MHZ MOTHERBOARD W/1 MB RAM EXP. TO 4 MB
- 1.2 OR 1.4 MB FLOPPY DRIVE
- HARD & FLOPPY CONTROLLER IDE
- 101 KEY KEYBOARD
- CLOCK/CALENDAR
- 2 SERIAL PORTS/ 1 PRINTER PORT/GAME

$249

386DX 40MHZ W/64K CACHE BAREBONES

- MINI TOWER CASE
- 33 MHZ 386 MB W/64K CACHE 1 MB RAM
- 1.2 OR 1.4 MB FLOPPY DRIVE
- HARD & FLOPPY CONTROLLER IDE
- 101 KEY KEYBOARD
- CLOCK/CALENDAR
- 200 WATT POWER SUPPLY
- 2 SERIAL PORTS/ 1 PRINTER PORT/GAME

$449

486DX 33MHZ W/64K CACHE BAREBONES

- MINI TOWER CASE
- 33 MHZ 386 MB W/64K CACHE 1 MB RAM
- 1.2 OR 1.4MB FLOPPY DRIVE
- HARD & FLOPPY CONTROLLER IDE
- 101 KEY KEYBOARD
- CLOCK/CALENDAR
- 200 W POWER SUPPLY
- 2 SERIAL PORTS/ 1 PRINTER PORT/GAME

$795

386SX/25MHz BAREBONES

- MINI TOWER CASE
- 16 MHZ 386SX MB W/1 MB RAM EXP. TO 4 MB
- 1.2 OR 1.4 MB FLOPPY DRIVE
- HARD & FLOPPY CONTROLLER IDE
- 101 KEY KEYBOARD
- CLOCK/CALENDAR
- 2 SERIAL PORTS/ 1 PRINTER PORT/GAME

$335

TOSHIBA AUTHORIZED DEALER

T2000SX/20/40/60	**1950/2075/2150**
T2000SXE 40/60 (MB)	**2295/2495**
T2200SX 40/60/80 (MB)	**2295/2550/2750**
T3200SX 120MB	**3295**
T3200SXC 120MB	**5495**
T3300SL 80/120	**3095/3450**
T4400SX 80LCD	**4250**
T4400SX 80GPD	**4495**
T4400SXC 80/120	**5795/6195**
T5200 100MB/200MB	**3100/3750**
T5200C 200MB Color	**5795**
T6400DXC -Color-200MB	**7400**
T6400DX -Plazma-200MB	**5368**
T6400SXC -Color-120MB	**6395**
T6400SX -Plazma-120MB	**4395**

AST CALL FOR BEST PRICES

- Premium 386SX 40/100 MB, 2 MB, AST VGA Card, VGA Color Monitor. . .
- Premium 386SX 20MHz 40/120, 2 MB, AST VGA Card, VGA Color Monitor. . .
- Bravo 386SX 40/100 MB,2 MB, AST VGA Card, VGA Monitor. . .
- Premium 386/25 or 33 MHz 120 MB, 2 MB, AST VGA Card, Hi-res VGA Monitor. . .

IBM/MAC

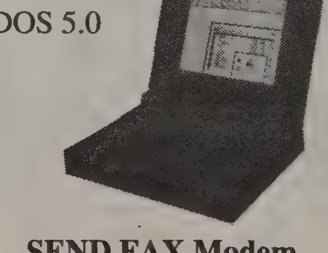
Limited Quantity

Wordperfect 5.1 IBM	**$225**
Lotus123 3.1 IBM.	**299**
Lotus 123 2.3 IBM	**275**
Plan Perfect IBM.	**149**
Lotus 123/Window 1.0	**199**
DacEasy Act Network	**99**
Seiko label PIN Apple	**145**
WordPerfect Office IBM	**99**
Lotus MenuScript IBM V2.1	**149**
Window 3.1 IBM	**40**

ALTIMA LSX

386, SX; 20MHz

- 1.0MB RAM
- VGA
- DOS 5.0



SEND FAX Modem

- Only 6.3 Pounds

Module I

40MB/1MB Ram **$1395**

Module II

60MB/3MB RAM...........**$1795**

AST

Premium Exec

386SX/25 NOTEBOOK

1.44 MB FD

4MB RAM

VGA Screen

only 6.5lbs.

DOS 5.0

Premium Exec

386SX/20 LAPTOP

W/40 MB HD $1849

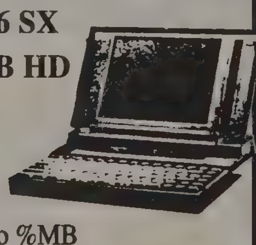
W/60MB HD $2095

EVEREX

TEMPO LX - NOTEBOOK

20MHz, 386 SX

40 or 60 MB HD

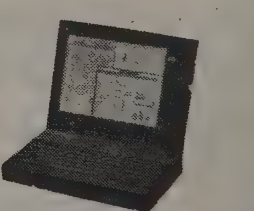


- VGA Display
- 1MB RAM Upgradable to %MB
- 1.44 MB 3.5" FD
- MS DOS 5.0
- MS Windows 3.0
- EVEREX Mouse
- Carrying Case

W/40 MB HD $1799

W/60MB HD $1999

Texas Instruments



TM 2000 Notebook **$979**

4.4 lbs., VGA 286-12, 20MB

TM 3000 Notebook

5.9lbs., VGA, 386SX-20,

2MB RAM, DOS, Laplink

40MG/60MB **1945/2299**

80MB **2625**

TM 3000 WIN-SX/60 ..**2575**

COMPUTER BUSINESS CENTER

We Will Try to Beat Any Advertised Price

Seagate COMPAQ NEC HEWLETT PACKARD IBM TOSHIBA

COMPUTER SOLUTIONS

LIMITED QUANTITY

NEC 2A MTR	$290
NEC 5D MTR	1550
HP PAINT JET SERIAL VER.	635
POCKET SIZE MODEM, 1200 BAUD	20
TAX FONT HP LASER FAMILY	69
VGA CARD VIDEO 7 (640X480,256)	31
SEND/RECEIVE FAX MODEM (9600SR; 2400MODEM)	79

EPSON AUTHORIZED DEALER

LX810	$162
FX850	299
LQ860	595
FX1050	435
LQ2550	895
DFX5000	1350
DFX8000	2195
LQ570	279
LQ870	450
LQ1170	599
LQ1070	379
ActionWriterII	699
EPL 8000	1325
EPL 7500 Laser 6ppm	1195

DTK 486-33 MHz

- 80486-33MHZ 64K Cache Motherboard
- 4MB RAM Expandable to 32MB
- Tower Case/Power Supply
- IDE (Hard/Floppy) Control
- TEAC 1.2MB Floppy Drive
- TEAC 1.44MB Floppy Drive
- 120MB Hard Disk
- Serial/Parallel/Game Card
- Super VGA 1024x768 Monitor & 1MB Card
- 101 Keyboard

$1710

COLORADO
MEMORY SYSTEMS INC.

120MB Low Cost Backup
- Fast-4MB in Under 1-1/2 Min
- QIC-40 Interchange Standard
- Floppy Interface
- PC, XT, AT and PS/2
- Novell, 3COM and Xenix

Internal unit w/tape	$225
External unit w/tape	295

MODEM

IBM Internal, 2400 Baud	$50
IBM External 2400 Baud	90
MAC External	150

MACINTOSH

MAC II CI/5MB/80MB	$2995
MAC II CI/5MB/1Drive	2750
MAC Classic 2MB/4MB	1096
MAC II SI 3MB/40MB	1995
MAC II SI 5MB/80MB	2285
MAC I LC 2MB/40MB	CALL

INTEL MATCO-PROCESSORS

80387/33/25	$201
80387/20/16	200
80387/16/20	135
80287/10/8	109
80C287-A	109

CANON BUBBLE JET

BJ-10EX Printer	$329
BJ-300 80 col, 600 cps	469
BJ-330 132 col, 600 cps	619

OKIDATA PRINTERS
Authorized Dealer

ML184 Turbo	295
ML321	460
ML390+	460
ML320	340
ML391+	625
ML380	225
ML393+	975
ML393+Color	1095
OL400	599
OL800	995
OL830	1395
OL840	1675

NEC AUTHORIZED DEALER

NEC Silentwriter M95, 6PPm, 2.0MB RAM, 35 Adobe Fonts, Apple Talk I/O, Printer Cable	$1475
NEC P6200 24Pin	425
P3300 24Pin	349
P6300	650
P3200 24Pin	245
P9300	895

IBM

Module 30/286/E21	$995
Module 50z/60MB	1100
Module 55/60MB	1850
Module 70B21/60MB/120MB	3550/4050
Module 80A31 320MB	4650

CITIZEN

Authorized Sales/Service

GSX 140+ New Faster	$309
GSX 130	275
GSX 145, 132 COL	409
200 GX, 9 Pin	169
Color Option	49/69

COMPAQ

386S MDD 1/84	$1750/2195
386/S/20 MDD 60/120	2190/2390
386/33M MOD 1/60/120	2500/2790/3175
SYSPRO/LT MDL 386/33-210	4157
• 386/33-510	5600
• 386/33-680	6890

FOR ALL OTHER PRODUCTS PLEASE CALL

MONITOR/VIDEO CARD

Sony 1304 w/Cable	$585
Sony 1302 900x560 .25	549
Sony 1320 720x480 .25	439
Goldstar 1024x768	329
Goldstar 800x600	309
VGA Card 800x600 Oak	49
VGA Card 1024x768 256K	75
Paradise Original 1024 Card	159

DTK COMPUTER INC. 386-33 MHz

- 80386-33MHz 64k Cache Motherboard
- 4MB RAM Expandable to 16MB
- Tower Case/Power Supply
- IDE (Hard/Floppy) Control
- TEAC 1.2 MB Floppy Drive
- TEAC 1.44 MB Floppy Drive
- 80MB Hard Disk
- Serial/Parallel/Game Card
- Super VGA 1024x768 Monitor & 1MB Card
- 101 Keyboard

$1565

HEWLETT PACKARD

LaserJet III w/Toner	$1495
IIP w/Toner	829
IIIP /Toner	1025
IIID w/Toner	2349
DeskJet 500 w/Cable	429
ScanJet Plus w/Int	1385
Paintjet XL	1650
PaintJet	695
Memory Upgrades III & IIP	
1 Mg	$80
2 Mg	$140
3 Mg	190
4 Mg	250
HP PostScript Card	489
For Laser II & IID	
2 Mg	$129
4 Mg	250

(310) 452-2027
FAX (310) 452-5548

2811 Ocean Park
Santa Monica, CA 90405

PRC

Hard Disk Drives

✦ Sales ✦ Sales ✦ Sales ✦ Sales ✦

- New, Used, and Refurbished
- Most models available
- AT/XT Kits Available
- Full One-Year Warranty on any drives above 80MB!
- Send in your dead drives for cash or trade-in credit!
- Visa/Mastercard Welcome
- Great Pricing-call around first and compare!

✦ Repairs ✦ Repairs ✦ Repairs ✦

- 6-month Warranty on repairs
- 5-7 Days on most models
- ST506/ESDI/SCSI/IDE/IBM: We do them all!
- Class 100 Clean Room
- Data Recovery Services
- Manufacturer-Trained Techs
- Advance Exchanges Avail.
- Full Technical Support

PRC: The Disk Drive Experts

800-627-DISK

9233 Eton Ave, Chatsworth, CA 91311
Tech Support (818) 700-8482
Fax (818) 700-0533

M.B.A.
Ph.D.
C.N.E.

We'll give you the third degree.

Just as some degrees help you in business and science, becoming a CNE makes you more valuable, too. When you're a CNE, it means you're a NetWare expert. So you receive job opportunities, and can command a higher salary. Plus, you receive other advantages that will help you manage networks more effectively.

Becoming one is easy. Simply register at your Novell Authorized Education Center by calling 1-800-LAN-STUDY (800-526-7883), and experience a whole new degree of success.

Certified Network Educators

Call Now To Reserve Your Place!
1-800-Lan Study
1-800-526-7883

21241 Ventura Blvd. Suite 266, Woodland Hills, CA

NOVELL®

•••NOTICE•••

ACP's 50th GIANT

COMPUTER SWAP MEET

Sunday July 26th, 8-2

Orange County's Original!

FREE Admission and Parking
100's of Sellers 'n Deals
in the Huge Parking Lot

Advanced Computer Products, Inc.
ACP SUPER★STORE
Since 1976
1310 E. Edinger
Santa Ana • 714-558-8813

Some Dealer Space Still Available...Call Mary

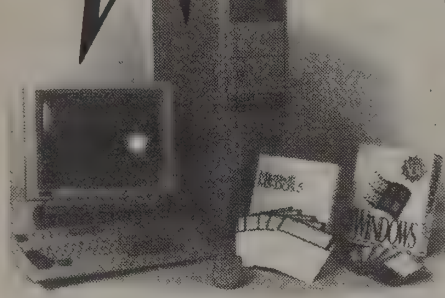
More Power Please!

The Perfect File Server!

Trade Tek Corporate 486 ™

Full Tower Case / 250watt PS
EISA 486/33MHz
256k Cache
16 Megabytes RAM
500MB Hard Disk
14" Non-interlaced SVGA Monitor
Paradise Non-interlaced SVGA Card
TEAC High-density 1.2MB/5.25" Floppy
TEAC High-density 1.44MB/3.5" Floppy
2 Serial, 1 Parallel, 1 Game Port
Fujitsu 101 Enhanced Keyboard
Microsoft DOS 5.0
Microsoft Windows 3.1
Microsoft Compatible Mouse

$3199



Add only...
$329 for EISA 50MHz
$640 for 32MB RAM
$199 for Diamond Stealth
$659 for 17" OEM Viewsonic
$1955 for 20" IDEK Monitor
$799 for 1.2 GIG SCSI Hard Disk

You want more power? You got it! Trade Tek systems are designed with power in mind. Whether you need a file server to run 100 workstations, the power to run a sophisticated CAD/CAM station, or you just want to run the hottest new games, Trade Tek has a computer for you!

More Service Please!

You got it! If you are shopping for a new system, the owner wants to talk to you! Just pick up the phone, dial the Trade Tek nearest you, and ask for the *owner!* You will get the best price and the fastest service.

Plus . . .

- ✓ **30-day Money Back Guarantee on all Trade Tek computers**
- ✓ **One Year Parts / Two Years Labor**
- ✓ **Lifetime Technical Support**
- ✓ **Financing Available**

Trade Tek Designer 486 ™

NEW! Local Bus!

Full Tower Case / 250watt PS
Local Bus 486/33MHz / 256k cache
Local Bus 32-bit Super VGA Card
Built-in Math Co-processor
8 Megabytes 70ns RAM
TEAC 1.2MB / 5.25"
TEAC 1.44 / 3.5"
200MB 15ms Hard Disk
2 Ser, 1 Par, 1 Game Port
Fujitsu 101 Enhanced Keyboard
Super VGA Non-interlaced Monitor
Super VGA Non-interlaced Card
Microsoft DOS 5.0
Microsoft Windows 3.1
Microsoft Compatible Mouse

$2569

Add only...
$179 for a 50MHz DX-2
$320 for 16MB RAM
$449 for 340MB Hard Disk
$199 for Diamond Stealth
$659 for a 17" OEM Viewsonic

Trade Tek Professional 486 ™

Full Tower Case / 250watt PS
Intel 486/33MHz / 256k cache
Built-in Math Co-processor
4 Megabytes 70ns RAM
TEAC 1.2MB / 5.25"
TEAC 1.44 / 3.5"
120MB 15ms Hard Disk
2 Ser, 1 Par, 1 Game Port
SVGA Non-interlaced Monitor
SVGA Non-interlaced Card
Fujitsu 101 Enhanced Keyboard
Microsoft DOS 5.0
Microsoft Windows 3.1
Microsoft Compatible Mouse

$1799

Add only...
$169 for a 50MHz DX-2
$160 for 8MB RAM
$199 for 200MB Hard Disk
$199 for Diamond Stealth
$659 for 17" OEM Viewsonic

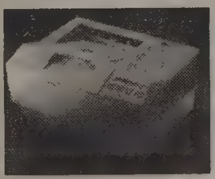
Trade Tek Office 386 ™

Mini Tower Case / 200watt PS
386/33MHz / 64k cache
4 Megabytes RAM
TEAC 1.2MB / 5.25"
TEAC 1.44 / 3.5"
120MB 15ms Hard Disk
2 Ser, 1 Par, 1 Game Port
SVGA 14" Color Monitor .28dp
SVGA card (1024x768) w/1MB
Fujitsu 101 Enhanced Keyboard
Microsoft DOS 5.0
Microsoft Windows 3.1
Microsoft Compatible Mouse

$1369

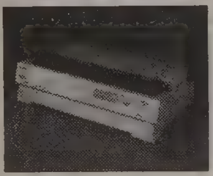
Add only...
$160 for 8MB RAM
$199 200MB Hard Disk
$199 for Diamond Stealth
$739 for 17" OEM Viewsonic

EPSON *Printers*



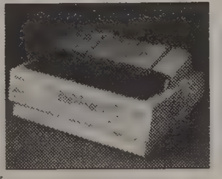
EPSON
EPL 8000
Laser Printer
10 pages per minute
HPIII compatible
Print Sharing

$1499



EPSON
LQ-1070
24-pin Dot Matrix
Wide Carriage
315 CPS
Near Letter Quality

$429



EPSON
LQ-570
24-pin Dot Matrix
265 CPS
Near Letter Quality

$299

386 Notebook

386DX/33MHz
4 Megabytes RAM
VGA Graphics
1.44 / 3.5" Floppy
80MB Hard Disk
1 Ser, 1 Par Port

$1899

Trade Tek computers, manufactured by the Bason Computer Company . . .
. . . call our San Fernando store for the dealer closest to you:

San Fernando Valley:
21820 Nordhoff St., Unit A
Chatsworth, CA 91311
(818) 727-9054
FAX: (818) 727-9064

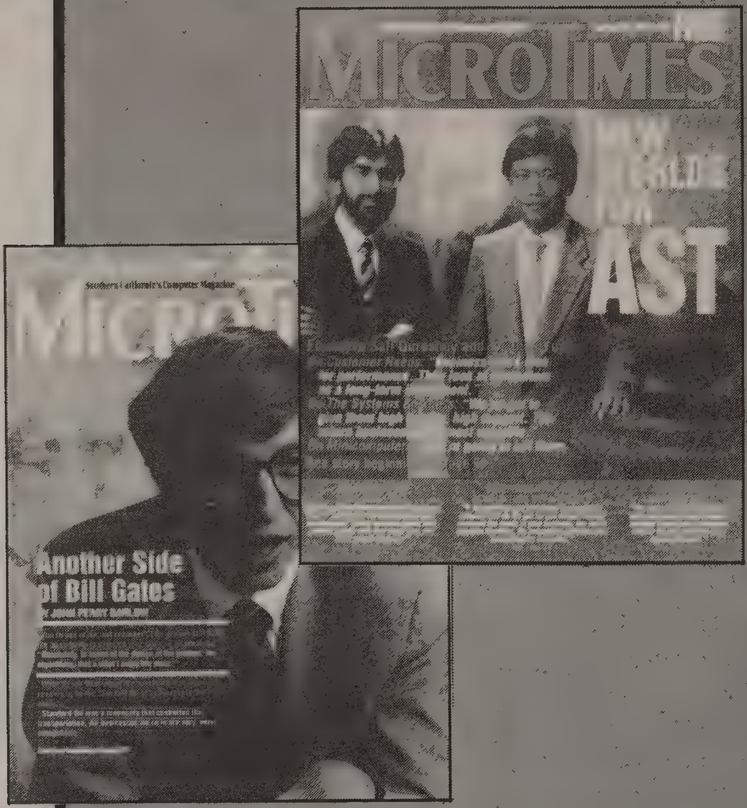
Santa Clarita & Antelope Valleys:
23001 Soledad Cyn. Rd.
Santa Clarita, CA 91350
(805) 254-8304
FAX: (805) 254-8306

M-F 9AM-7PM SAT 10AM-5PM

VISA MasterCard

IBM Computer programs - $1.99 per disk!
Home • Business • Windows • Education • Games • Fonts • Clip Art
Call (310) 804-7633 for a FREE Catalog!

Subscribe to MicroTimes


MICROTIMES
AST
Southern California's Computer Magazine
MICRO
Another Side of Bill Gates

And you'll be the winner in more ways than one! You'll get new product updates, software and hardware reviews, industry news and information, user group info, and so much more.

You'll be right on the pulse of the computing world you live in here in California. And you'll never miss a beat, because you've subscribed to MicroTimes and it's delivered to your home every issue.

Plus, in MicroTimes, you'll be able to find all the products and services you'll need from local computer stores and businesses.

START OUR SUBSCRIPTION:

Company Name ______________________________

Address ______________________________

City ______________________________

Please send me: ☐ Northern Edition ☐ Southern Edition

Inside U.S.

☐ 1st Class **$60**/13 issues In Mexico & Canada $45

☐ 3rd Class **$32**/13 issues Overseas (surface mail) $45

☐ I have enclosed check for $ ______________

☐ Please charge $ ______________ to Visa/MC

______________________ Exp. ______________

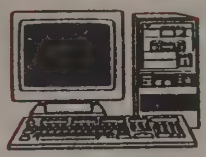
Card Name ______________________________

Signature ______________________________

Mail to:
MicroTimes Subscriptions
3470 Buskirk Ave.
Pleasant Hill, CA 94523

BEST PRICE & PERFORMANCE GUARANTEED!

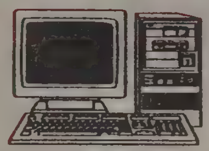
PRISM 386SX-25



- 386SX-25 Motherboard
- AMI BIOS
- 2MB RAM
- 1.2 & 1.44 Floppy Drives
- 85MB Hard Drive
- 2S/1P/1G
- SVGA Monitor
- SVGA Card
- Mini Tower Case w/200W PS
- 101 Enhanced Keyboard

$995/or $30 mo.

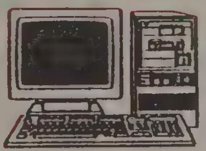
PRISM 386-33



- 386-33 Motherboard w/ 64K Cache AMI BIOS
- 4MB RAM
- 1.2 & 1.44 Floppy Drives
- 120MB Hard Drive (14.5ms)
- 2S/1P/1G
- SVGA Monitor
- SVGA (1MB) Card
- Mini Tower Case w/200W PS
- 101 Enhanced Keyboard

$1210/or $40 mo.

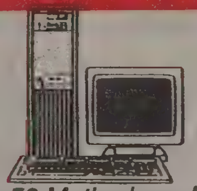
PRISM 486-33



- 486-33 Motherboard w/ 256K Cache AMI BIOS
- 4MB RAM
- 1.2 & 1.44 Floppy Drives
- 120MB Hard Drive (14.5ms)
- 2S/1P/1G
- SVGA Monitor
- SVGA (1MB) Card
- Mini Tower Case w/200W PS
- 101 Enhanced Keyboard

$1595/or $50 mo.

PRISM 486-50



- 486-50 Motherboard w/ 256K Cache AMI BIOS
- 4MB RAM
- 1.2 & 1.44 Floppy Drives
- 120MB Hard Drive (14.5ms)
- 2S/1P/1G
- SVGA Monitor
- SVGA (1MB) Card
- Full Tower Case w/230W PS
- 101 Enhanced Keyboard

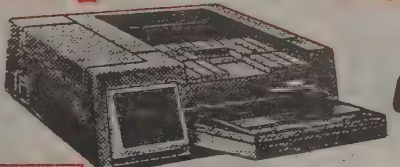
$1995/or $65 mo.

SPECIAL VGA SYSTEM

286-12 MHz
40MB Hard Drive
1.2MB Floppy Drive
VGA Card
1 Parallel, 2 Serial
101 Keyboard

ONLY... $499 or $15 mo.

OKIDATA® Laser Printers



BEST BUY!
OKIDATA OL400

$575* Plus Toner **or $20 mo.**

PC MAGAZINE

• PC Magazine® Editors Choice • 4ppm, 300dpi, crisp blacks, publication quality output • 17 fonts included, more standard typefaces than LaserJet™ II • 200-sheet paper tray • HP® Series II compatible • 5 year print head warranty

NEW! OKIDATA OL830...

$1295* Plus Toner **or $40 mo.**

PC MAGAZINE

• Adobe PostScript® • 8ppm for high productivity • 17 scalable fonts • 2MB memory for full page graphics • Compatible with 5,000 software packages • 5-year print head warranty

NEW! Okidata® OL810 $1195
8ppm 300 x 1200dpi, PCL5, 42 fonts

LASER PRINTER MEMORY

MAKE	MODEL	1MB	2MB	3MB	4MB
EPSON	EPL-6000		$144		$208
	EPL-7000	112	144	206	
	Action Laser II	CALL			
HP	III 2-Layer Board	95	127	159	191
	III 4-Layer Board	97	129	161	193
	II/IID (2, 4MB)		133		197
	II/IID (1, 2, 4MB)	106	138		202
	DeskJet	95 (256K)			
	IIIsi	105			
IBM	4019/E	106	138	186 (3.5MB)	
	4029	105	154		235
OKIDATA	400	97	129		
	800	139	151	193	215
	830		179		
PANASONIC	4410	147	179	211	243
	4420	108	140	172	204
	4450	130			
	4455		189		

LOW-PRICED NOTEBOOKS

DESCRIPTION	40 MB	60 MB	80 MB
NP 903 (386SX-16) 2MB RAM	$1320	$1350	$1420
NP 913 (386SX-20) 2MB RAM	$1399	$1450	$1550
NP 925 (386-25SX) 2MB RAM	$1545	$1595	$1650

CALL FOR 386DX-33/486DX-33 NOTEBOOK PRICES

GREAT NEW FINANCING PLAN AVAILABLE NOW!

Buy now, pay after 3 months.

Subject to credit approval.

Micro America, Inc.

formerly New Age Computers
266 Viking Ave., Brea, California 92621
(714) 256-0695 fax (714) 256-1546

continued from page 88

By Design
USER'S GUIDE
STREETWISE

PC SOFTWARE REVIEW

BY DESIGN FOR WINDOWS

Published By: Streetwise Software
List Price: $99 (DOS version also available)
Reviewed By: John Wolcott

It's no secret that WordPerfect for Windows allows powerful flexibility in page design. However, using WordPerfect for desktop publishing (DTP) can be difficult. In fact, seminars are offered to provide training for just these skills. Developed as a WordPerfect for Windows enhancement, By Design offers a wide range of page layout and clip art that makes attending such seminars unnecessary. While it doesn't offer quite the flexibility of high-end DTP programs, it does make an easy job of using the power of WordPerfect for Windows to style your company newsletters, labels, memos, brochures, and even fax cover sheets.

The documentation included with By Design goes well beyond an ordinary manual. Yes, the normal basics of operation are there. However, the impressive features are the simple guidelines it covers for correct publishing procedures and creative suggestions for your specific applications. The manual offers excellent counsel for DTP newcomers and will inspire veterans with fresh ideas.

By Design creates its own tool button bar for the WordPerfect for Windows screen that can be loaded as a default when you launch WordPerfect. The tools from the button bar allow access to all of the program features. Page layouts are already designed for almost any publishing task, including plenty of options for page borders, lead characters, graphic fonts, and clip art. Some difficulty was encountered when selecting page layouts, but this was easily overcome using WordPerfect's sizing and placement tools.

If you've been considering an upgrade to WordPerfect for Windows, this package is a good reason to do so. With By Design, polished results are as simple as a few mouse clicks on the tool bar. (Streetwise Software, 2210 Wilshire Blvd., Suite 836, Santa Monica, CA 90403-5784. 310/829-7827) ■

VALLEY COMPUTER

WE SPECIALIZE IN...
- Local Area Network
- Image Database
- Retail POS System
- Medical /Dental Record Keeping

Call us and ask for information on LaserFiche Image database, our flagship product, which is currently being used by companies such as 20th Century Fox, DWP, Merisel, Westinghouse, U.S. Navy and the I.R.S.

SPECIAL...
Novell Netware 3.11 or 2.2 Pre-installed
Turn-key System

We offer on-site service and training.

CALL

486-33 MHz
- 256K Cache
- 4 MB RAM
- 1.2 & 1.44 FDD
- 200 MB HDD
- 14" Super VGA Color Monitor

486-50 add $285 **$1989**

386-33 MHz
- 64K Cache
- 4 MB RAM
- 1.2 & 1.44 FDD
- 120 MB HDD
- 14" Super VGA Color Monitor

386-40 add $75 **$1599**

386SX-25 MHz
- 2 MB RAM
- 1.2 & 1.44 FDD
- 80 MB HDD
- 14" VGA Color Monitor

$989

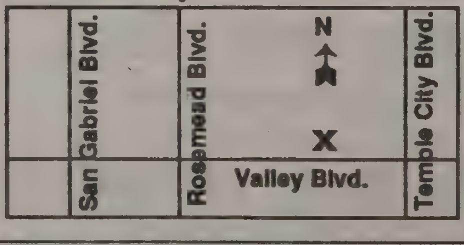
286-20 MHz
- 1 MB RAM
- 1.2 & 1.44 FDD
- 40 MB HDD
- 12" Monochrome Monitor

$689

All Systems come with 2S/1P/1G Ports, mouse and mini tower or desktop case.

FREE PRINTER with purchase of 386-33 or 486-33 system

Call: (818) 579-5639
9619 E. Valley Blvd. #A • El Monte



New Business ... New Markets ...
New Career Opportunities

Northwest High Tech 1992

"The definitive guide to the Northwest's booming computer industry."— Paul Andrews, The Seattle Times

Now includes Silicon Valley!

528 pages of hard-to-find information profiling over 2,400 computer software, hardware, sales and service companies —Hiring, products and expansion plans —Over 5,200 management-level contacts

Available at Stacey's, Computer Literacy and other area bookstores —ISBN 0-945264-13-5—$24.95

Or call Resolution Business Press / 1-800-397-4612 / Free Shipping

Database version available with a *free copy of the book. $99.95. Call for details.*

Abacus, Inc.
100% Women-Owned Business
- Technical Services
- Macintosh and PC Applications Training
- Presentation Services: Multimedia, Animation
- ISG and Compaq Computer Specialized Dealership
- Personnel Service

San Francisco • North Hollywood • San Ramon • San Jose

415.974.7000

Please see our **Computer Repairs** ad on page

ORANGE COUNTY'S REAL LOW PRICE LEADER!

CASES

At Jr for an XT with a 150 Watt PS	$48.00
Baby AT Case with a 200 Watt PS	$65.00
Mini Tower Case with a 200 Watt PS	$65.00
Mid Size Tower Case with a 230 Watt PS	$89.00
Full Size Tower Case with a 230 Watt PS	$115.00

DATA CARTRIDGES

DC2000 Data Cartridge (40 MB)	$14.00
DC2120 Data Cartridge (120 MB)	$18.50
DC6150 Data Cartridge (150 MB)	$23.25
DC6250 Data Cartridge (250 MB)	$26.00

MOTHERBOARDS

(all boards include CPU, BIOS & manuals)

286-16 (AMI BIOS)	$67.00
286-20 (AMI BIOS)	$79.00
386SX-16 (AMI BIOS)	$115.00
386SX-25 (AMI BIOS)	$129.00
386-25 (AMI BIOS)	$189.00
386-33 with 64K CACHE (AMI BIOS)	$239.00
386-40 with 64K CACHE (AMI BIOS)	$249.00
486-33 with 256K CACHE (AMI BIOS)	$579.00
486-50 with 256K CACHE (AMI BIOS)	$899.00

MEMORY

41256-80 256Kx1 80 NS RAM Chips (ea)	$1.19
44256-80 256Kx4 80 NS RAM Chips (ea)	$4.09
1024-80 1024x1 80 NS RAM Chips (ea)	$4.09
4464-80 64x4 80 NS RAM Chips (ea)	$1.30
256K 80 NS SIMM Modules (1 MB=4 Pcs.)	$45.00
256K 80 NS SIPP Modules (1 MB=4 Pcs.)	$46.00
1MB 70 NS SIMM Module (ea)	**$34.00**
1MB 70 NS SIPP Module (ea)	**$35.00**
4MB 70 NS SIMM Module	**$121.00**

KEYBOARDS

BTC Enhanced 101 Key	$25.00
Focus FK-2001	$40.00
Focus FK-8000	$48.00
Focus FK-5001	$62.00
Focus FK-9000	$69.00
Keytronics 101 Enhanced	$42.00

MATH CO-PROCESSORS

Cyrix 80387SX-16	$93.00
Cyrix 80387SX-20	$103.00
Cyrix 80387SX-25	$113.00
Cyrix 80387-25	$141.00
Cyrix 80387-33	$149.00
Cyrix 80387-40	$159.00

*CALL FOR IIT MATH CO-PROCESSOR PRICING !

CONTROLLER CARDS

IDE 2 Hard/2 Floppy 1:1 Interleave	$15.00
IDE 2H/2F/2 Ser/1 Par/1 Game	$22.00
I/O Card 2 Ser/1 Par/1 Game	$14.00

TAPE BACK-UPS

Cable for 3rd Drive	$4.00
Colorado 120 MB (DJ-10)	$187.00
Colorado 250 MB (DJ-20)	$245.00
Dedicated Controller for DJ-20	$79.00
AB-11 Controller	$39.00
KE-09 External Kit	$74.00

VIDEO CARDS

Monochrome Graphics Card	$15.00
Color Graphics Card	$20.00
16-bit VGA Card (256K) on board	$37.00
16-bit VGA Card (512K) on board	$48.00
16-bit VGA Card (1 MB) on board	$69.00
Orchid Fahrenheit 1280	$249.00
Diamond Stealth (1MB)	$249.00

POWER SUPPLIES

150 Watt XT PS	$29.00
200 Watt XT PS	$35.00
200 Watt PS/2 Type PS	$37.00
230 Watt Full Size AT PS	$39.00

PRINTERS

Citizen PN48 Professional	$309.00
Citizen GSX-130	$222.00
Citizen 200GX	$155.00
Citizen 200GX-15	$299.00
Citizen GSX-140+	$275.00
Citizen GSX-145	$372.00
Color Kit for GSX-140	$42.00
Color Kit for GSX-145	$61.00

DISKETTES

100% Certified 360K (5.25" DS/DD) Box of 50	$12.50
100% Certified 1.2MB (5.25" DS/DD) Box of 10	$4.50
100% Certified 720K (3.5" DS/DD) Box of 10	$4.50
100% Certified 1.44MB (3.5" DS/DD) Bulk (ea.)	$.69
3M 5.25" DS/DD (360K)	$5.52
3M 3.5" DS/DD (720K)	$7.68
3M 5.25" DS/HD (1.2 MB)	$9.75
3M 3.5" DS/HD (1.44 MB)	$12.00
MAXELL 5.25" DS/DD (360K)	$4.99
MAXELL 3.5" DS/DD (720K)	$6.99
MAXELL 5.25" DS/HD (1.2 MB)	$8.79
MAXELL 3.5" DS/HD (1.44 MB)	$10.99
Verbatim 5.25" DS/DD (360K)	$5.29
Verbatim 3.5" DS/DD (720K)	$6.99
Verbatim 5.25" DS/HD (1.2MB)	$8.79
Verbatim 3.5" DS/HD (1.44MB)	$10.99

HARD DRIVES

Seagate ST-351AX 40 MB 28 MS (IDE)	$189.00
Seagate ST-3120A 105 MB 17 MS (IDE)	$299.00
Maxtor 7120A 130 MB 15 MS (IDE)	$328.00
Maxtor 7213A 213 MB 15 MS (IDE)	$499.00
Quantum 52MB (IDE) 9 MS	$210.00
Quantum 120 256K Cache (IDE) 9 MS	$328.00
Quantum 240 256K Cache (IDE) 9 MS	$599.00

FLOPPY DRIVES

Teac 1.2 MB 5.25"	$58.00
Teac 1.44 MB 3.5" with Mounting Kit	$56.00

SOUND CARDS

Soundblaster Pro	$179.00
Soundblaster Basic	$158.00
Soundblaster	$89.00
Thunderboard	$89.00
Pro Audio Spectrum 16	$218.00
Speakers for Soundboards	$19.95

MONITORS

14" Amber Mono (720x350)	$85.00
14" Paper White Mono (720x350)	$85.00
14" Paper White VGA	$120.00
14" VGA (1024x768 .39mm DP)	$220.00
14" VGA (1024x768 .28mm DP)	$259.00
CTX 14" Super VGA Color Monitor (1024x768 /.28mm Dot Pitch)	$280.00
CTX 14" Super VGA Non-Interlaced (1024x768/.28mm Dot Pitch)	$320.00
MAG MX15F 15" 1280x1024 .28mm DP	$599.00
MAG MX17F 17" 1280x1024 .26mm DP	$1,100.00

CD ROMS

Sony CD-535i Internal Kit	$439.00
Sony CD-535e External Kit	$499.00

CD-ROM KITS INCLUDE: Interface card, Drive, CD Caddy, Interface card, Cables, Illustrated Encylopedia, Reference Library, World Atlas, US Atlas, CD Game Pack 1.

MODEMS

2400 Baud Internal with Software	$42.00
2400 Baud External with Software	$59.00
9600 Baud Send/Rec Fax/2400B Modem	$69.00

CALL FOR RIBBONS – WE CARRY MOST TYPES AND BRANDS IN STOCK!

386SX-25 SYSTEM

- Mini Tower Case or Desktop Case
- 1 MB RAM Installed
- Teac 1.2 & 1.44 MB Floppy Drives
- 2 Hard/2 Floppy Drive Controller
- 80387 Math Co-Processor Socket
- 1 MB Trident VGA Video Card
- 1024x768 Super VGA Monitor
- Real Time Clock Calendar
- 2 Serial ports, 1 Parallel, 1 Game Port
- 101 Enhanced Keyboard

$650.00

386-40 SYSTEM

- Mini Tower Case or Desktop Case
- 1 MB RAM Installed
- 64K Cache Installed exp. to 256K
- Teac 1.2 & 1.44 MB Floppy Drives
- 2 Hard/2 Floppy Drive Controller
- 80387 Math Co-Processor Socket
- 1 MB Trident VGA Video Card
- 1024x768 Super VGA Monitor
- Real Time Clock Calendar
- 2 Serial ports, 1 Parallel, 1 Game Port
- 101 Enhanced Keyboard

$750.00

486-33 SYSTEM

- Mini Tower Case or Desktop Case
- 1 MB RAM Installed exp. to 64 MB
- 256K Cache Installed exp. to 512 K
- Teac 1.2 & 1.44 MB Floppy Drives
- 2 Hard/2 Floppy 1:1 IDE Controller
- Wietek Co-Processor Socket
- 1 MB Trident VGA Video Card
- 1024x768 Super VGA Monitor
- Real Time Clock Calendar
- 2 Serial ports, 1 Parallel, 1 Game Port
- 101 Enhanced Keyboard

$1075.00

MICROSOFT DOS 5.0 OR WINDOWS 3.1 UPGRADE $39.00

TEL: **714-821-1210**
FAX: **714-821-4039**

7027 Katella Ave.
Stanton, California 90680

- For Hard Drives or configuration changes just add or subtract the prices listed above!
- 2400 Baud Internal Modems $20.00 with any system purchase!

FINANCIAL • SOUNDBLASTER • UTILITIES • OVER 3000 DIFFERENT TITLES

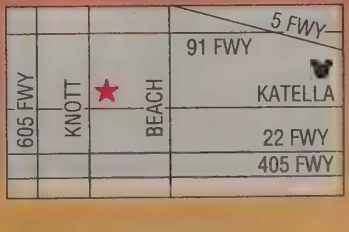
SHAREWARE SOFTWARE

$1⁵⁰ ea.

BUSINESS • ENTERTAINMENT • GRAPHICS • GAMES• COME SEE OUR LIBRARY

FREE GIFT
with every purchase
(1 Per Customer)

7027 KATELLA, STANTON



SYSTEM UPGRADE SPECIALISTS!

COMPUTER SUPPLY CLUB

"We Won't Be Undersold"

HOURS: Monday–Friday: 10-7, Saturday: 10–6

TERMS: We accept VISA, Master Card and Discover. No personal checks over $200.00.
Availability and Prices subject to change without notice. We will meet or beat any advertised price!

FREE PRINTER FREE PRINTER FREE PRINTER FREE PRINTER FREE PRINTER

GALAXY 2200 PERSONAL COMPUTER

THE NEXT GENERATION

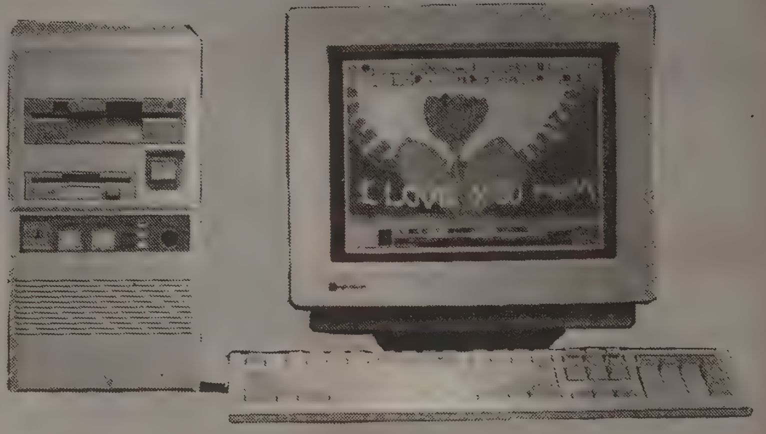
FREE
Panasonic Printer
with purchase of any
Galaxy Personal
Computer

The Best Quality at the Best Price

386SX-25MHz

- 25MHz CPU
- 2 MB SIMM RAM (70ns) (16 MB Upgradeable)
- 1.2 MB & 1.44 MB Floppy Drive (TEAC)
- 40 MB IDE Drive
- IDE I/O 2S, 1P, 1G Ports
- 14" 1024 x 768 (0.39 Dot) Super VGA Monitor
- 16 Bit Super VGA Card with 512KB Memory on Board
- Mini Tower Case with 230 Watt Power Supply
- 101 Enhanced Keyboard
- Hi-Res MS Compatible Mouse

$898



386DX-33MHz

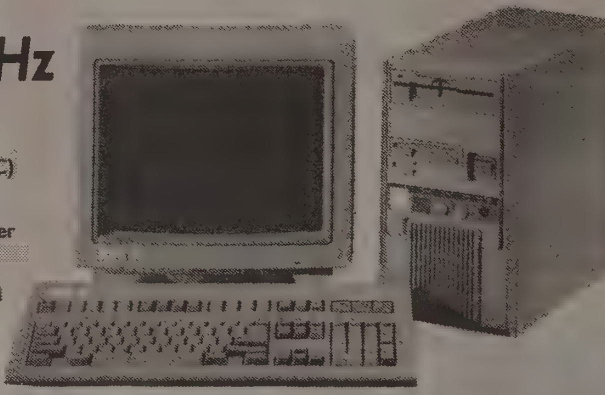
- 33MHz Intel CPU
- 64KB Cache
- 4 MB SIMM RAM (70ns) (32 MB Upgradeable)
- 1.2 MB & 1.44 MB Floppy Drive (TEAC)
- 80 MB IDE Drive
- IDE I/O 2S, 1P, 1G Ports
- 14" 1024 x 768 (0.28 Dot) Super VGA Monitor
- 16 Bit Super VGA Card with 512KB Memory on Board
- Digital Mini Tower Case with 230 Watt Power Supply
- 101 Enhanced Keyboard
- Hi-Res MS Compatible Mouse

$1358

386DX-40MHz

- 40MHz CPU (AMD)
- 64KB SIMM RAM (70ns) (32 MB Upgradeable)
- 1.2 MB & 1.44 MB Drive (TEAC)
- 120 MB IDE Drive
- IDE I/O 2S, 1P, 1G Ports
- 14" 1024 x 768 (0.28 Dot) Super VGA Monitor
- 16 Bit Super VGA Card with 512KB Memory on Board
- Digital Mini Tower Case with 230 Watt Power Supply
- 101 Enhanced Keyboard
- Hi-Res MS Compatible Mouse

$1399



486-33 ISA

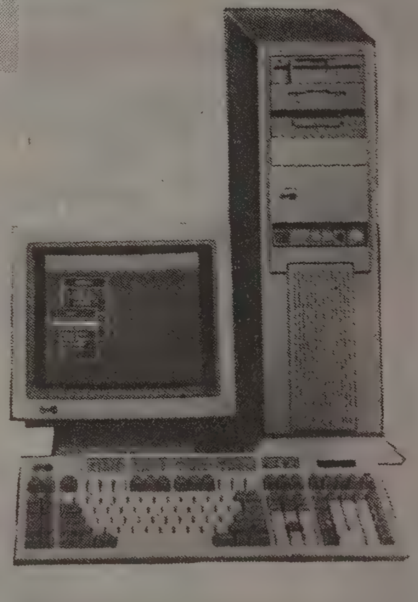
- 33MHz Intel CPU
- 64KB Cache
- 4 MB RAM (70ns) (64 MB Upgradeable)
- 1.2 MB & 1.44 MB Floppy Drive (TEAC)
- 120 MB Hard Drive
- IDE I/O 2S, 1P, 1G Ports
- 14" 1024 x 768 (0.28 Dot) Super VGA Monitor
- 16 Bit Super VGA Card with 1 MB Memory on Board
- Digital Mini Tower Case with 230 Watt Power Supply
- 101 Enhanced Keyboard
- Hi-Res MS Compatible Mouse

$1598

486-50 ISA

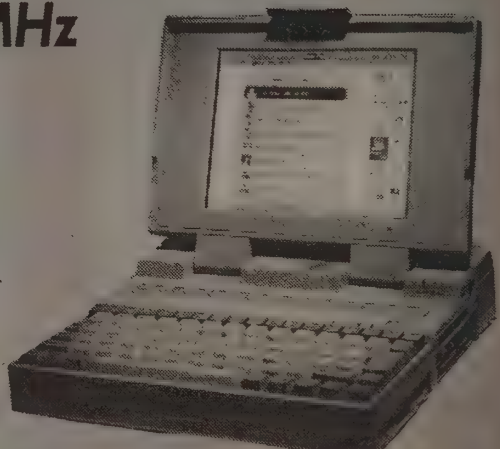
- 50MHz Intel CPU
- 256 KB Cache
- 8 MB SIMM RAM Memory (70ns) (64 MB Upgradeable)
- 1.2 MB & 1.44 MB Floppy Drive (TEAC)
- 240 MB Hard Drive (12ms)
- IDE I/O 2S, 1P, 1G Ports
- 14" 1024 x 768 (0.28 Dot) Super VGA Monitor
- 16 Bit Super VGA Card with 1 MB Memory on Board
- Digital Middle Tower Case with 250 Watt Power Supply
- 101 Enhanced Keyboard
- Hi-Res MS Compatible Mouse

$2598



386DX-33MHz Notebook

- 33MHz Intel CPU
- 32KB Cache
- 32 Grayscale
- 4 MB RAM on Board (16 MB Expandable)
- 120 MB IDE Hard Drive
- 3.5" & 1.44 MB Floppy Drive
- VGA Port for Color Monitor
- Supertwist LCD with CCFT Backlit
- 640 x 480 Pixels Resolution with 32 Grayscale Levels
- 2 Serial, 1 Parallel Ports
- Removeable NICAD Battery w/ Charger
- Enhanced Multifunctional Keyboard
- 11" W x 8.6" D x 2" H



$2198

486-33 LOCAL BUS: CALL FOR PRICES

3D Research, Inc.

(A subsidiary of Galaxy Electronic Corp.)
137 S. 9th Ave., City of Industry, CA 91744
Tel: (818) 333-1065 Fax: (818) 333-7548

M-F 9:00-6:30 pm
Sat. 11:00-5:00 pm

- *We offer competitive prices, superior products, customer support and the best values*
- *30-day money back guarantee for defective items*
- *One Year Warranty (Labor and Parts)*
- *We Accept Government & University Purchase Orders*

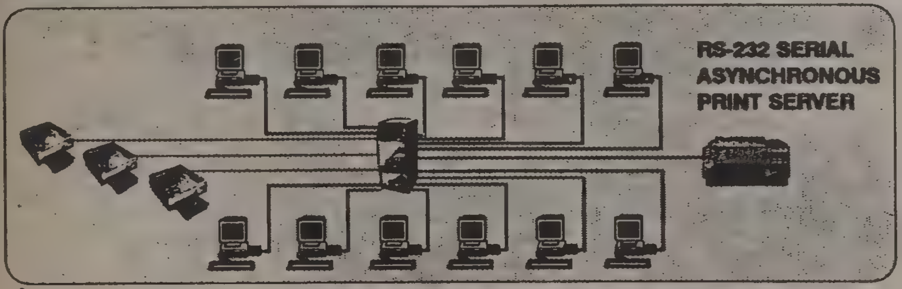
PRINTER SHARING - ON OR OFF THE NETWORK

Ethernet, TCP/IP, RS232 Serial Asynchronous, Centronics Parallel, Twisted Pair... Largest selection, best prices

XL-SERIES Print Server

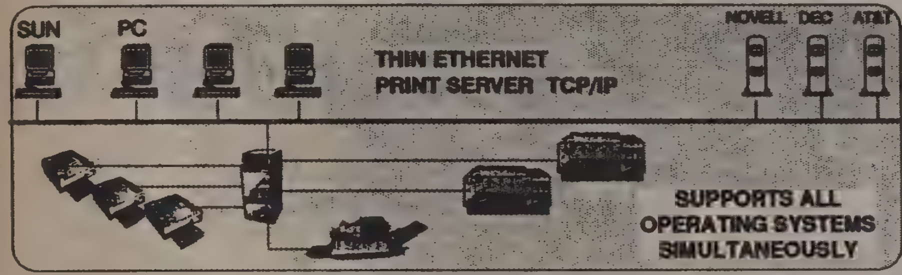
PC MAGAZINE

"In terms of fast setup, direct status checking, low maintenance, and nearly effortless troubleshooting, the $995 Data Manager XL-100 with 512K buffer, eight serial ports with RJ-11 connections, two DB-25 parallel ports, and one Ethernet port is a PC resource person's dream machine."



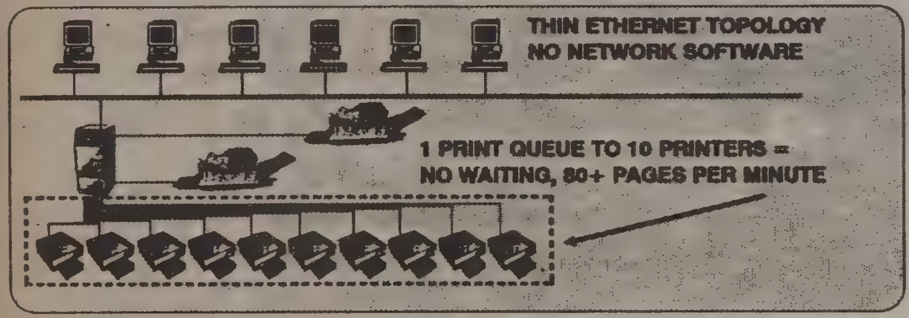
1. The XL-Series as the hub of a printer sharing network. With 10 to 18 ports, two parallel connectors and RJ12 twisted pair connectors for the remainder, this configuration allows you to create a stand-alone network and add stations as required.

XL-100S (10 port): Reg. $1,295, now **$695** XL-110S (18 port): Reg. $1,595, now **$995**



2. The XL-Series as an Ethernet TCP/IP print server. Connect the unit as one of the nodes on your network and link-up to any one of 10 to 18 printers.

XL-100E-P (10 port, Ethernet, BNC connector, TCP/IP): Reg. $2,495, now **$1,595**


THIN ETHERNET TOPOLOGY
NO NETWORK SOFTWARE
1 PRINT QUEUE TO 10 PRINTERS =
NO WAITING, 80+ PAGES PER MINUTE

3. The XL-Series as a print server or peripheral sharing hub - using thin Etherent cables, but without network software. Ten printers in a class yield 80 pages per minute output - no queues and no waiting.

XL-100E-S (10 port, BNC connector): Reg. $1,995, now **$1,295**

ATTENTION:

CORPORATE USERS.

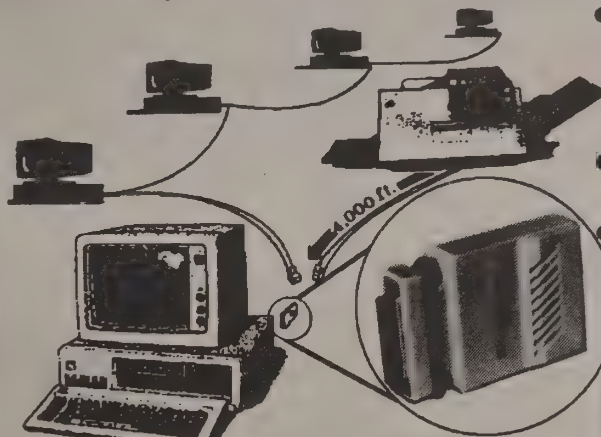
The XL-Series provides a unique printer sharing solution - the same product family can be used in departmental level applications and in network environments. Unlike printer specific solutions with limited port options, the XL-Series can be used with all printers and plotters, with up to 18 ports in a single unit.

Call today for the dealer or system integrator nearest you.
CALL: 800-537-5999

PARALLEL PRINTING TO 4,000ft - AT HIGH SPEED

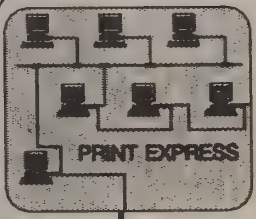
Start by connecting one printer to one computer with PRINT EXPRESS™ - then add up to 30 more computers, one at a time!

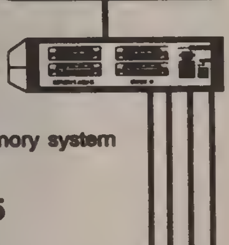
- **No special software - use with current applications (Word, Windows, Ventura, dBASE, 1-2-3, etc.)**
- **ESCAPE E and CONTROL D**
- **Star and Bus configurations.**



Transmitter (1 per computer), Sugg. Ret. $69.95
Sale Price $49.95

Start-up Kit: Transmitter, Receiver, Power Supply and 50ft twisted pair cable. Sugg. Ret. $169.95
Sale Price $119.95

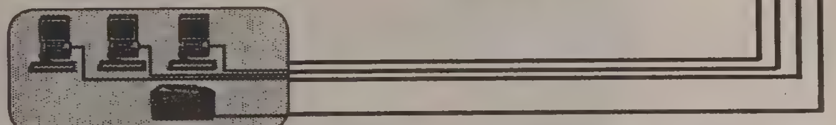




Share 3 PCs to 1 printer - all parallel - with the MultiPort Express™, then connect up to 30 more computers - one at a time - with Print Express

256K buffer memory system
Sugg. Ret. $249.00
Sale Price$175

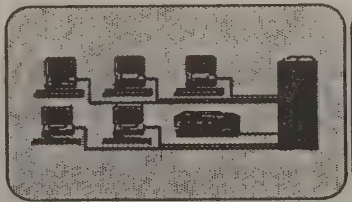
1 Megabyte buffer memory system
Sugg. Ret. $349.00
Sale Price $275



DATA MANAGERS - 5 USERS AND UP

Dynamically buffered peripheral sharing

- **Easy to install - you can do it yourself! No special software required**
- **Internal 256K dynamically allocated spooler/buffer expandable to 1 Meg.**
- **Add more users by daisy-chaining with any Data Manager**

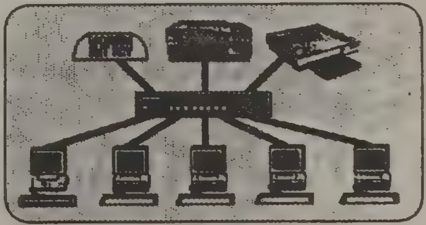


DM-60+ 5 users to 1 PRINTER

- **Serial or Parallel - up to 1,000 ft on Twisted-Pair**
- **Comes with all cables and connectors needed to connect five users to a printer - no extras to buy.**

4x4 - 8 PORTS
SERIAL AND PARALLEL

- **Multiple users to multiple printers**
- **Mix Serial and Parallel ports**
- **Every port can be an input or output**



Model No.	Input Ports	Output Ports	Total Ports	Sugg. Retail	Sale Price
DM60+S	5 Serial	1 Serial	6	$349	$275
DM60+P	5 Par.	1 Par.	6	$695	$495
DM44	4 Ser/4 Par	4 Ser/4 Par	8	$695	$495
DM45	6 Ser/2 Par	6 Ser/2 Par	8	$695	$495
DM46	8 Serial	8 Serial	8	$695	$495

IMC DATA MANAGER

PHONE 800-537-5999 FOR ORDERING AND DETAILS

HOT SHOT

Only 500 Systems Available, Order Now!!

$888 for the 386SX-25MHz

BLOWOUT BLOWOUT BLOWOUT

BLOWOUT BLOWOUT BLOWOUT

386SX-25MHz

☐ 80386SX-25MHz Motherboard
☐ AMI BIOS
☐ 80387SX-25MHz Math Socket
☐ 60MB 18ms Hard Disk Drive
☐ 5 1/4" 1.2 MB HD Floopy Drive
☐ 3 1/2" 1.44 MB HD Floopy Drive
☐ 2MB RAM Memory - Expandable to 8MB RAM
☐ IDE1:1 H/F Controller
☐ 2 Serial/Parallel/Game Port
☐ 16 Bit VGA Card with 256K
☐ VGA Color Monitor
☐ Mini Tower Case
☐ Digital Display
☐ 200W Power Supply
☐ 101 Enhanced Keyboard
☐ FCC Class "B" Approved

WARRANTY

☐ OneYear Parts & Labor
☐ 30 Days Money Back Guarantee

ORDERING PROCEDURES

Call to confirm availiability and get an order number. (No system will be sent without an order number)

DELIVERY

Please allow 5-10 business days for delivery.
(Please add $50 for shipping and handling if applicable)

PAYMENT

Send a Money Order or Bank's Cashier's Check payable to DHT.

Please call for all your needs and requirements!

DHT
Superstore for Computers

Order Hotline:
Call (818) 810-0552 or
Fax: (818) 810-4555

VISA

TERMS All prices are subject to change without prior notice and quantities may be limited and we reserve the right to substitude equivalent items. Unauthorized returns are subject to 15% restocking fee. Returning items must be sent shipping prepaid by customer. California residents add 8.25% sales tax.

Visit our showroom at ☞ 17411-B East Gale Ave., City of Industry, CA 91748

Get A Better Computer But Pay Less.

Make us an offer

486-50MHz

- ☐ 486DX-50MHz Processor
- ☐ 256K Cache RAM
- ☐ 8MB of RAM Installed
- ☐ 1.2 & 1.44 MB Floppy Drive
- ☐ 360MB 10ms Hard Drive
- ☐ IDE 1:1 H/F Controller
- ☐ 2 Serial/Parellel/Game
- ☐ Super VGA Card w/1MB
- ☐ Super Non.Int M.T .28mm
- ☐ Full Tower Case w/230w
- ☐ 101 Enhance Keyboard
- ☐ MS DOS 5.0 w/Manuals
- ☐ Window 3.0 w/Manuals
- ☐ FCC Class "B" Approved

$3499 Make Your Offer

486-33MHz

- ☐ 486DX-33MHz Processor
- ☐ 256K Cache RAM
- ☐ 4MB of RAM Installed
- ☐ 1.2 & 1.44 MB Floppy Drive
- ☐ 210MB 17ms Hard Drive
- ☐ IDE 1:1 H/F Controller
- ☐ 2 Serial/Parellel/Game
- ☐ Super VGA Card w/1MB
- ☐ Super Non.Int M.T .28mm
- ☐ Full Tower Case w/230w
- ☐ 101 Enhance Keyboard
- ☐ MS DOS 5.0 w/Manuals
- ☐ Window 3.0 w/Manuals
- ☐ FCC Class "B" Approved

$2499 Make Your Offer

486-33MHz

- ☐ 486DX-33MHz Processor
- ☐ 64K Cache RAM
- ☐ 4MB of RAM Installed
- ☐ 1.2 & 1.44 MB Floppy Drive
- ☐ 120MB 18ms Hard Drive
- ☐ IDE 1:1 H/F Controller
- ☐ 2 Serial/Parellel/Game
- ☐ Super VGA Card w/512K
- ☐ Super VGA Monitor.39mm
- ☐ Full Tower Case w/230w
- ☐ 101 Enhance Keyboard
- ☐ MS DOS 5.0 w/Manuals
- ☐ Window 3.0 w/Manuals
- ☐ FCC Class "B" Approved

$1999 Make Your Offer

386-40MHz

- ☐ 386DX-40MHz Processor
- ☐ 64K Cache RAM
- ☐ 4MB of RAM Installed
- ☐ 1.2 & 1.44 MB Floppy Drive
- ☐ 120MB 18ms Hard Drive
- ☐ IDE1:1 H/F Controller
- ☐ 2 Serial/Parellel/Game
- ☐ Super VGA Card w/512K
- ☐ Super VGA Monitor.39mm
- ☐ Desktop case w/230w UL
- ☐ 101 Enhance Keyboard
- ☐ MS DOS 5.0 w/Manuals
- ☐ Window 3.0 w/Manuals
- ☐ FCC Class "B" Approved

$1599 Make Your Offer

386-33MHz

- ☐ 386DX-33MHz Processor
- ☐ 64K Cache RAM
- ☐ 4MB of RAM Installed
- ☐ 1.2 & 1.44 MB Floppy Drive
- ☐ 120MB 18ms Hard Drive
- ☐ IDE1:1 H/F Controller
- ☐ 2 Serial/Parellel/Game
- ☐ Super VGA Card w/512K
- ☐ Super VGA Monitor.39mm
- ☐ Any of our case
- ☐ 101 Enhance Keyboard
- ☐ MS DOS 5.0 w/Manuals
- ☐ Window 3.0 w/Manuals
- ☐ FCC Class "B" Approved

$1599 Make Your Offer

386-25MHz

- ☐ 386DX-25MHz Processor
- ☐ 4MB of RAM Installed
- ☐ 1.2 & 1.44 MB Floppy Drive
- ☐ 80MB 18ms Hard Drive
- ☐ IDE1:1 H/F Controller
- ☐ 2 Serial/Parellel/Game
- ☐ 16 Bit VGA Card w/256K
- ☐ VGA Color Monitor .39mm
- ☐ Desktop Case w/230W UL
- ☐ Digital Display
- ☐ 101 Enhance Keyboard
- ☐ MS DOS 5.0 w/Manuals
- ☐ Window 3.0 w/Manuals
- ☐ FCC Class "B" Approved

$1349 Make Your Offer

Please call for all your needs and requirements!

DHT

Superstore for Computers

Order Hotline:

Call (818) 810-0552 or

Fax: (818) 810-4555

Visit our showroom at ☞ 17411-B East Gale Ave., City of Industry, CA 91748

VISA

M-TEK SYSTEM

2760 S. Harbor Blvd., Suite H, Santa Ana, CA 92704
TEL: (714) 850-1044 FAX: (714) 850-0321

M-TEK

TOP QUALITY! MOST POWERFUL! BEST PRICE & SERVICE!

MONTHLY SPECIAL!

MICROSOFT WINDOWS 3.1 UPGRADE W/MANUAL
FOR ONLY **$34!**

486-50 MHz
TRUE 50

- 486DX-50 ISA w/256K Cache
- Built-In Co-Processor & 8K RAM Cache
- 4MB RAM (Exp. to 64MB)
- Big Tower Case w/250 UL P/S
- 1.2MB & 1.44MB Floppy Drives
- 2FD/2HD AT Bus 1:1 Interleave Controller
- 2 Serial/1 Parallel/1 Game Port
- 101 Enhanced Keyboard
- 200MB IDE Hard Drive
- 16 Bit High Speed SVGA Card w/1MB
- 14" SVGA Non-Interlaced Monitor
- High Resolution Mouse

$2189

386-40 MHz

- 386-40 w/64K Cache
- 4MB On Board (Up To 32MB)
- TEAC 1.2MB Floppy Drive
- TEAC 1.44MB Floppy Drive
- 85MB (17ms) Hard Drive
- 16 Bit SVGA Card w/1MB
- 14" SVGA Monitor
- 2 Serial/1 Parallel/1 Game Port
- 101 Enhanced Keyboard
- Mini Tower Case w/220 UL P/S

$1175

386-33 MHz $1155

486-33 MHz

- 486-33 ISA w/256K Cache
- 4MB RAM (Up To 32MB On Board)
- TEAC 1.2MB & 1.44MB Floppy Drives
- 174MB (17ms) Hard Drive
- 16 Bit SVGA Card w/1MB
- 14" SVGA Non-Interlaced Monitor
- 2 Serial/1 Parallel/1 Game Port
- 101 Enhanced Keyboard
- Big Tower Case w/250 UL P/S
- High Resolution Mouse

$1695

486-33 MHz
LOCAL BUS

- 486-33 w/256K Cache
- 4MB (Up To 32MB On Board)
- TEAC 1.2MB & 1.44MB Floppy Drives
- 174MB (17ms) Hard Drive
- 16 Bit ET 4000 SVGA Card w/1MB
- 14" SVGA Non-Interlaced Monitor
- 2 Serial/1 Parallel/1 Game Port
- 101 Enhanced Keyboard
- Big Tower Case w/250 UL P/S
- High Resolution Mouse

$1845

386SX-25 MHz

- 386SX-25
- 1MB On Board (Up To 32MB)
- 1.2MB Floppy Drive
- 40MB Hard Drive
- 16 Bit VGA Card w/256K
- 14" VGA Color Monitor
- 2 Serial/1 Parallel/1 Game Port
- 101 Enhanced Keyboard
- Regular Desktop Case w/Power Supply

$765

286-12MHz

START AT
$325
CALL FOR DETAILS

386SX-25MHz NOTEBOOK

STARTING AT
$1599

386DX-33MHz NOTEBOOK

CALL
FOR THE BEST PRICE

HARD DISKS

Maxtor 130MB IDE
Maxtor 330MB ESDI/SCSI
Maxtor 680MB ESDI/SCSI
Maxtor 80MB IDE
Micropolis 330MB ESDI/IDE
Western Digital 200MB IDE
Conner 120MB IDE
105MB IDEHDD

ALL OTHER SIZE H/D PLEASE CALL!

NETWORKING CARDS

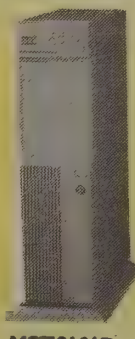
8 Bit Arcnet	CALL
16 Bit Arcnet	CALL
8 Bit Ethernet	CALL
16 Bit Ethernet	CALL
4 Ports Active Hub	CALL
8 Ports Passive Hub	CALL
NOVELL NETWARE	CALL
LANtastic	CALL

ALL NETWORK CABLES AVAILABLE!

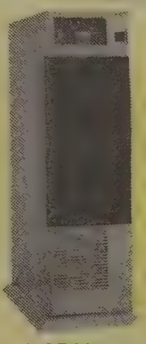
ACCESSORIES

MONITORS	**CALL**
NEC, Sony, IDEK 17"	
CD ROM	**CALL**
All Makes And Models	
Sony CD-ROM w/Bundled Software	**$429**
Tape Backup	**CALL**
DJ20-250MB	**$254**
DJ10-120MB	**$176**
All Makes And Models	
Scanners	**CALL**
All Makes And Models	
High Speed VGA Card w/1MB	**$90**
Oak 16 Bit VGA 256K	**$40**
Logitech Mouse	**$65**
M-Tec Serial Mouse	**$15**
Zyxel 14,400 bps w/V.42 Fax Modem Internal	**$325**
Zyxel 14,400 bps w/V.42 Fax Modem External	**$440**
Data Switch Box (AB)	**$20**
Diskette Box	**$7**
HP Laser Printers	**CALL**
Panasonic Printers	**CALL**
Okidata Printers	**CALL**
Epson Printers	**CALL**

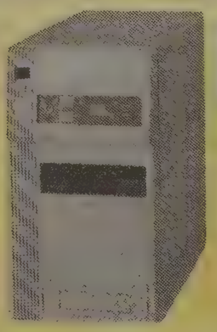
ATTENTION PURCHASING...CASES!



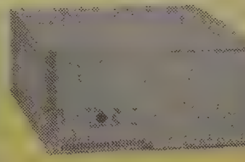
MST-9101D



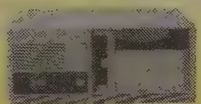
MST-9001D



MST-8921D

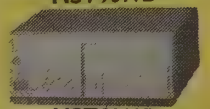


DT-201

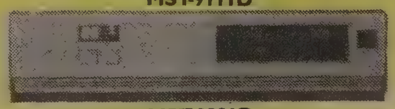


MST-9011D

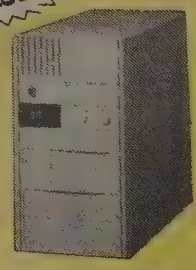
NEW CASE



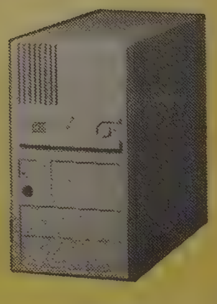
MST-9111D



MST-8901D



MST-9251D



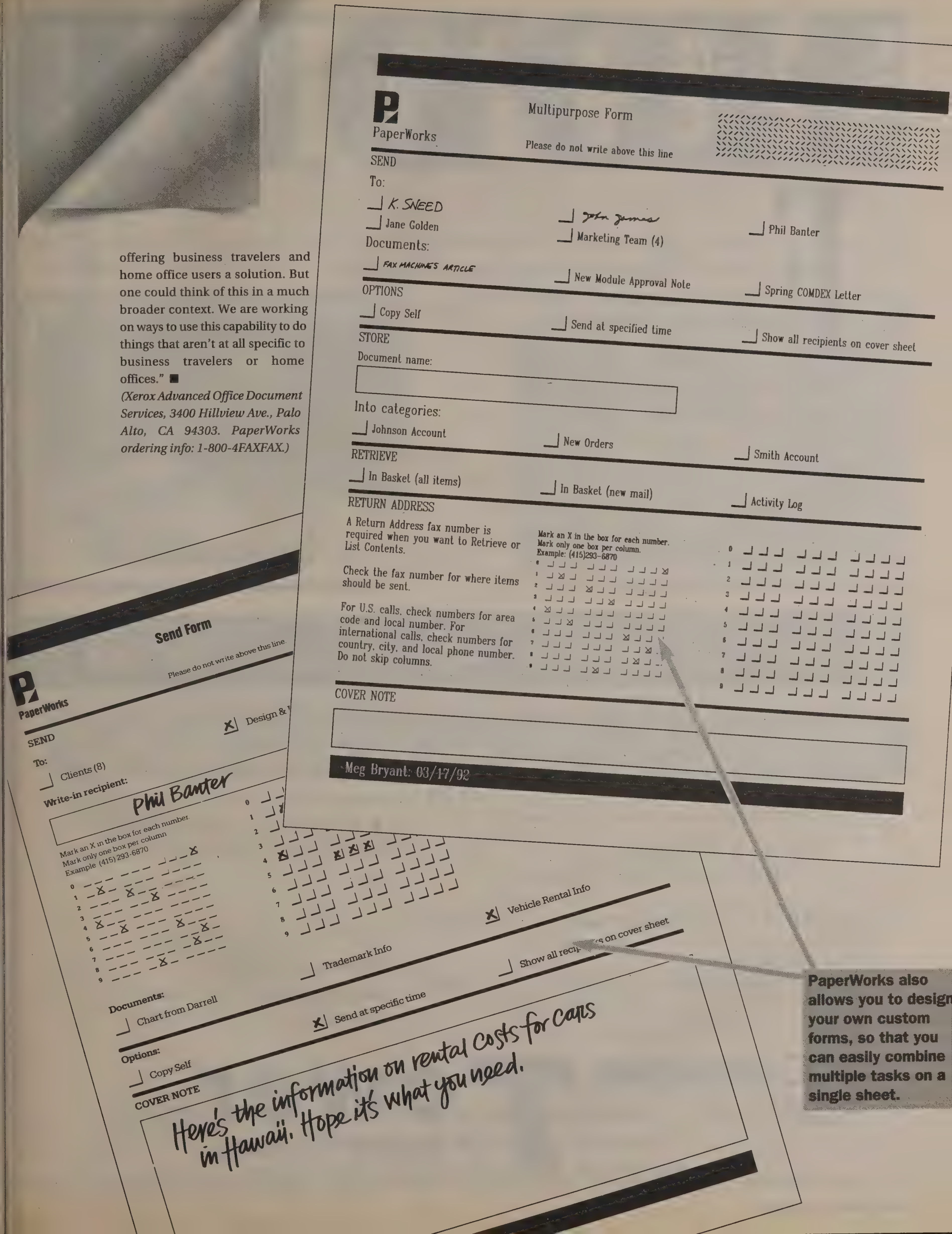
MST-9151D

MST-9101D - Full Tower Case w/250W UL Power Supply Ext:5x5.25", Int:2x5.25", 3x3.5", 10 Drive Bays	$130
MST-8921D - Mid Tower Case w/200W Power Supply Ext:5x5.25", Int:2x5.25"	$120
MST-8922D - Mid Tower Case w/200W Power Supply Ext:5x5.25", Int:2x5.25" w/Door	$112
MST-9151D - Mini Tower Case w/220W UL Power Supply 2x5.25" Drive, 3x3.5" Drive	$65
MST-9251D - Mini Tower Case w/220W UL Power Supply 2x5.25" Drive, 3x3.5" Drive	$68
MST-9011D - Desk Top Cases w/200W UL Power Supply	$70
MST-9111D - Desk Top Cases w/200W Power Supply	$72
MST-9012D - Desk Top Cases w/200W Power Supply	$72
DT-201 - Desk Top Cases w/200W Power Supply 3x5.25", 2x3.5"	$65
MST-8901 - Slim Case w/150W Power Supply Ext:1x5.25", 1x3.5", Int.:1x5.25"	$70
MST-8902 - Slim Case w/150W Power Supply Ext:1x5.25", 1x3.5", Int.:1x5.25"	$70

- ✓ ONE YEAR MANUFACTURER WARRANTY (PARTS & LABOR)
- ✓ TOP VALUE AND COMPETITIVE PRICES
- ✓ KNOWLEDGEABLE SALES STAFF AND PROFESSIONAL TECHNICAL SUPPORT
- ✓ 48 HOURS BURN-IN TEST, FAST DELIVERY
- ✓ DISCOUNT AVAILABLE FOR SCHOOL, UNIVERSITY AND GOVERNMENT P.O.
- ✓ WE CARRY MORE THAN CAN BE LISTED, PLEASE CALL FOR ANY INFORMATION

✓ PRICES SUBJECT TO CHANGE W/OUT NOTICE ✓ LIMITED QUANTITY offering business travelers and home office users a solution. But one could think of this in a much broader context. We are working on ways to use this capability to do things that aren't at all specific to business travelers or home offices." ■

(Xerox Advanced Office Document Services, 3400 Hillview Ave., Palo Alto, CA 94303. PaperWorks ordering info: 1-800-4FAXFAX.)



PaperWorks

Multipurpose Form

Please do not write above this line

SEND

To:

☐ K. SNEED
☐ Jane Golden
☐ John James
☐ Marketing Team (4)
☐ Phil Banter

Documents:

☐ FAX MACHINES ARTICLE
☐ New Module Approval Note
☐ Spring COMDEX Letter

OPTIONS

☐ Copy Self
☐ Send at specified time
☐ Show all recipients on cover sheet

STORE

Document name:

Into categories:

☐ Johnson Account
☐ New Orders
☐ Smith Account

RETRIEVE

☐ In Basket (all items)
☐ In Basket (new mail)
☐ Activity Log

RETURN ADDRESS

A Return Address fax number is required when you want to Retrieve or List Contents.

Check the fax number for where items should be sent.

For U.S. calls, check numbers for area code and local number. For international calls, check numbers for country, city, and local phone number. Do not skip columns.

Mark an X in the box for each number.
Mark only one box per column.
Example: (415)293-6870

COVER NOTE

Meg Bryant: 03/17/92

PaperWorks

Send Form

Please do not write above this line.

SEND

To:

☐ Clients (8)
☒ Design &

Write-in recipient:

Phil Banter

Mark an X in the box for each number.
Mark only one box per column.
Example (415)293-6870

☒ Vehicle Rental Info
☐ Trademark Info
☐ Show all recipients on cover sheet

Documents:

☐ Chart from Darrell
☒ Send at specific time

Options:

☐ Copy Self

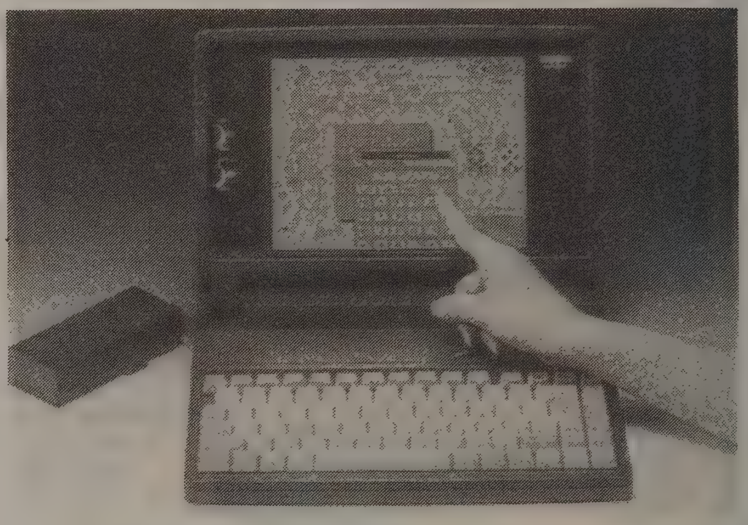
COVER NOTE

Here's the information on rental costs for cars in Hawaii. Hope it's what you need.

PaperWorks also allows you to design your own custom forms, so that you can easily combine multiple tasks on a single sheet.

MODUL

From the famous notebook manufacturer in South Korea, "NTK Korea" brings you the 900 Series ModularSystem Notebooks. So forget the limitations of your function card. We have many different module packs as an option, such as Modem/Fax, SCSI Interface, Ethernet, and others. The 900 Series has a larger-size display, four different CPUs, and various sizes of harddisks (20, 40, 60, 80, 120MB). For any combination of CPU, RAM, Hard disk, Module Pack—just call us! We are happy to serve you.



NP-92 386SXL-25 $1645

☐OPTIONS

☐ Fax/Modem ☐ Modem ☐ Car adapter ☐ ARC net Network☐ Ethernet Network ☐ SCSI Interface

☐ Fax/Scanner ☐ Others

☐NP-902 286-12 **$1295**

☐ 2MB RAM, 60MB HD (20,40,80 optional)

☐ DOS not included

☐NP-903 386SX16Mhz **$1395**

☐ 2MB RAM, 60MB HD (40, 80 optional)

☐ DOS not included

☐NP-913 386SX20Mhz **$1545**

☐ 2MB RAM, 80MB HD (60,120 optional)

☐ DOS 5.0 Installed.

☐NP-933 386DX33Mhz **$2045**

☐ 4MB RAM, 80MB HD (60, 120 optional)

☐ DOS 5.0 WINDOWS

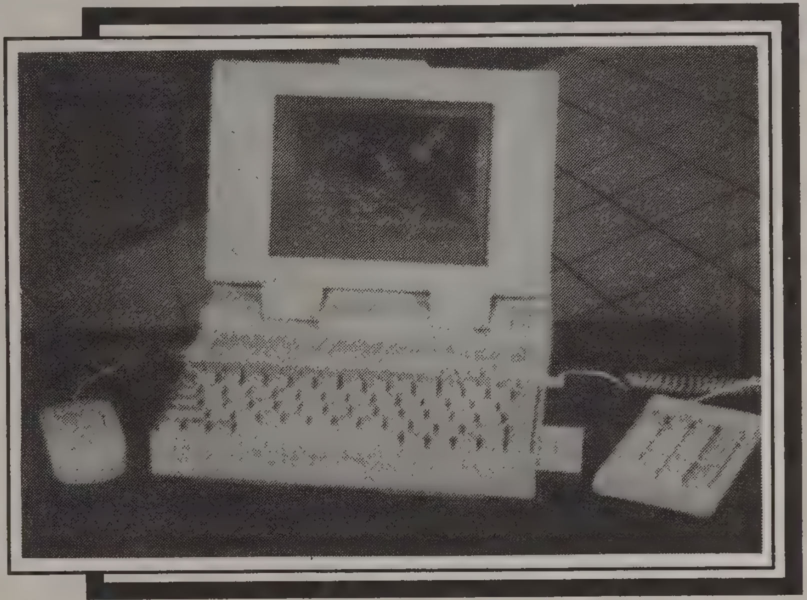
- ▲ 2MB RAM, Exp to 8MB
- ▲ 3.5" Floppy Drive
- ▲ 80MB Fast HD (60/120 optional)
- ▲ 640x480 VGA, 64 Gray Levels
- ▲ 9.5" Screen, 25% Larger Viewing Area
- ▲ Port For VGA Mon., Key BD, 1 Serial, 1 Par
- ▲ 7.7L/B w/Two Batteries
- ▲ DOS & WINDOWS
- ▲ Carring Bag & A/C Adapter
- ▲ 12.2W x 9.5"D x 1.7-2.1"H

Computer Tower

Modular Notebook

E-UP NOTEBOOK

Today's computing demands require faster CPU and bigger storage. Here are the notebooks you have been waiting for. Tower offers you two light speed notebooks which are battery powered, the NP205 (386DX33) and the NP206 (486DX33). Hard disk space is available up to 200MB. In addition, you can buy a Docking Station. Now on the road or in the office, you can enjoy full computing power!



NP-206 486DX-33 $2425

NP-205 386DX-33 $2024

❏OPTIONS

❏ Addional Battery Pack ❏ Additional Battery Charger
❏ Docking Station ❏ Car Adapter & Charger ❏ Others

▲ 8K CACHE (486DX-33), 32K CACHE (386DX-33)
▲ 4MB RAM, Exp to 16MB
▲ 3.5" Floppy Drive
▲ 120MB Fast HD (80, 170, 200, 240 MB optional)
▲ 640x480 VGA, 32 Gray Level
▲ Ext. Numeric Keypad Included
▲ Port For VGA Mon., Key BD, 2 Serial, 1 Par
▲ 81-Keyboard
▲ MS Windows 3.1 & MS-DOS 5.0
▲ Carring Bag & A/C Adapter
▲ 11"W x8.6"D x 2"H

(213) 487-2441 Fax (213) 487-0551
2500 W. 8th St. #102 Los Angeles, CA 90057
Business Hours Mon–Sat 9am–7pm (PST)
Visa, Master, AMEX, Discover, Cashier's Check, Money Order Welcome

continued from page 67

be a replacement upgrade for its classic DESQview multitasker. DESQview/X has both advantages and disadvantages for a single-platform user.

The most obvious plus is the ability to display scaled program windows at SuperVGA screen resolution. This allows you to monitor many more applications on the screen simultaneously. With some limitations, DESQview/X has classic DESQview's ability to multitask all DOS applications well.

Some "regular" DESQview features are missing in the new package. As discussed above, ordinary DOS graphics applications don't run in "virtualized" small-screen windows. You can't adjust DVX's CPU timeslice ratio on the fly, nor can you configure applications to save CPU time and memory by running "foreground only." DESQview/X does not "put away" programs and swap them to disk. DVX's "Learn" macros and Mark and Transfer feature don't work with "ill-behaved" text programs or with DOS graphics applications that run in full-screen windows.

The new package requires EGA as a minimum graphics standard, where classic DESQview runs comfortably with monochrome, CGA or Hercules graphics. DVX also takes up 8–10MB of hard disk space compared with classic DESQview's modest 1–2MB storage requirement.

On the other hand, DESQview/X offers accessible, intuitive online help and window management, as well as several great games. (The package includes Tetris and a version of Blaqjack designed to run on a network.) The traditional pop-up DESQ menu can now be customized in a standard text editor. You can add nested program subgroups, or place internal DESQview commands anywhere on the menu. The order of listed programs can be reshuffled easily through internal menu options.

Registered users of other Quarterdeck products can upgrade to DESQview/X for $100. Alternative window managers OSF/Motif and Open Look can be purchased separately for $250 and $200, respectively. The basic DESQview/X package includes built-in support for established IPX/SPX or NETBIOS networks. To connect to UNIX X Windows machines, you need a separate TCP/IP network package that Quarterdeck sells for an additional $200. (DESQview/X, v. 1.02 from Quarterdeck Office Systems, 150 Pico Blvd., Santa Monica, CA 90405. 310/392-9851) ■

The lower-powered machine can effectively borrow the higher-speed CPU and greater storage space of another machine.

$99.00 Special

Computer Training

1992 Summer Schedule.

CEI

Computer Education International

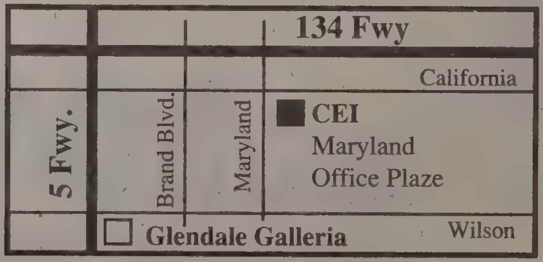
Introduction to PCs		
*1 Wednesday	8:30-4:30	July 29
2 Thr eve	6:00-9:30	August 6, 13
2 Mon eve	6:00-9:30	Sept 14, 21
*1 Wednesday	8:30-4:30	Sept 30
Lotus 1-2-3, Beginning Level		
1 Saturday	8:30-4:30	July 25
*1 Wednesday	8:30-4:30	August 5
2 Thur eve	6:00-9:30	Sept 3, 10
Lotus 1-2-3, Intermediate Level		
*1 Friday	8:30-4:30	August 14
Lotus 1-2-3, Advanced Level		
1 Saturday	8:30-4:30	August 29
WordPerfect Level 1		
2 Mon eve	6:00-9:30	July 28, Aug 4
*1 Monday	8:30-4:30	August 17
1 Saturday	8;30-4:30	August 22
2 Wed eve	6:00-9:30	Sept 9, 16
WordPerfect Level 2		
1 Saturday	8:30-4:30	August 8
1 Saturday	8:30-4:30	Sept 12

Since 1984 CEI has provided Computer training to Southern California, utilizing a specialized curriculum of practical applications. In addition to regularly scheduled classes CEI provides:
On-Site Training to Small Businesses, Corporations, Governmental Agencies and Civil Groups. CEI can train on your computers or provide all the equipment and courseware.
Tutoring and Consultation for the busy Executive or Individual on most software applications. We also have bilingual instructors and children programs.

Call for Information or Reservations
(818) 242-0828 **MC/VISA**

Computer Education International
230 North Maryland Ave., Suite 309
Glendale, CA 91206

WordPerfect Desktop Publishing		
1 Saturday	8:30-4:30	August 15
Windows 3.1		
*1 Friday	8:30-4:30	August 7
2 Tue eve	6:00-9:30	Aug 25, Sept 1
*1 Monday	8:30-4:30	Sept 14
Microsoft Word 2.0 for Windows		
*1 Friday	8:30-4:30	August 21
DOS/Hard Disk Management		
2 Wed eve	6:30-9:30	August 5, 12
*1 Thursday	8:30-4:30	August 13
2 Tue eve	6:00-9:30	Sept 22, 29



*Classes are conducted during business hours

Tatung High Quality Monitors,
You'll like what you see ...
TATUNG

TATUNG®

When Monitors Mean Business, Choose The Name You Know.

The **Tatung** name is practically synonymous with the word "monitor." That's because, as one of the five largest manufacturers, we have produced more monitors for more users than almost anyone, anywhere in the world.

REYES
ELECTRONICS
16615 Johnson Dr.,City of Industry, CA 91754
Tel (818) 968-2222 • Fax (818) 968-1050

You can depend on a **Tatung** monitor. You have our name on it.

Model	Size / Dot Pitch	Refresh Rate	Max. Resolution
MM-14SAE	14" Mono SVGA	31.5KHz/35K-38KHz	1024x768 (I.) VLMF+
CM-1492V	14" 0.39mm VGA	31.5KHz	640x480
CM-1496V	14" 0.31mm VGA	31.5KHz	640x480
CM-14SAM	14" 0.39mm SVGA	31.5KHz/35K-38KHz	1024x768 (I.)
CM-14SAS	14" 0.28mm SVGA	31.5KHz/35K-38KHz	1024x768 (I.)
CM-14SAE	14" 0.28mm SVGA	31.5KHz/35K-38KHz	1024x768 (I.) VLMF+
CM-1400	14" 0.25mm SVGA	31.5KHz/35K-38KHz	1024x768 (I.) *
CM-14UAS	14" 0.28mm UVGA	31.5/35.5/37.5/48 KHz	1024x768 (N.I.)
CM-14UAE	14" 0.28mm UVGA	31.5/35.5/37.5/48 KHz	1024x768 (N.I.) VLMF+
CM-17MBD	17" 0.28mm Hi-Res	29K-66KHz	1280x1024 (N.I.)
CM-2000	20" 0.31mm Hi-Res	21K-65KHz	1280x1024 (N.I.)

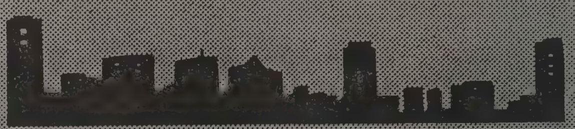
+ : Meets MPR II Low Radiation Standards   * : Trinitron Tube

WHEN IT COMES TO LOW PRICES, GREAT SERVICE AND SELECTION

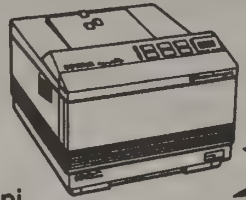
We've Got You Covered!

MICRO CITY
COMPUTER SUPERSTORE

HEWLETT PACKARD
Authorized Dealer



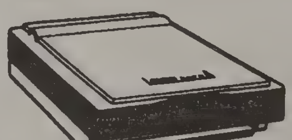
LASERJET IIIP



Call for Best Price

- 300 dpi
- HP III printer features
- PCL 5 scalable typefaces
- Small business printer

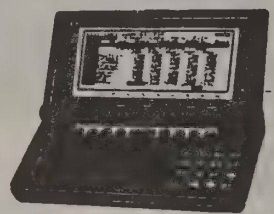
SCANJET IIC SCANNER w/ INTERFACE



- 256 Grayscale or 24 bit color
- High 400 dpi resolution
- One - Pass scanning
- Automatic exposure selections

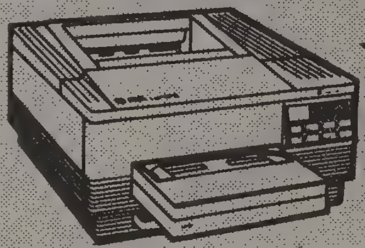
$1319.00

95LX PALMTOP PC



- 11 ounce package
- Built in software : Lotus 1-2-3, Appointment book, Filer and more.

LASERJET III



In Stock!

- Highest print quality
- More fonts & scalable typeset
- Laser Jet compatibility protects software investment
- **$79 for 1Mb memory exp. board ($99 value) expendable to 4Mb available only with HPIII purchased**

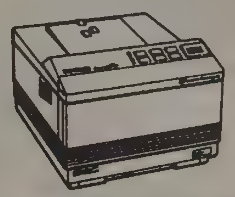
SCANJET *IIP* SCANNER w/ INTERFACE

NOW EVEN MORE AFFORDABLE!

- High-quality finished
- Documents, presentation etc.
- Full-page scan
- 8 bit grayscale
- Image editor

$799.00

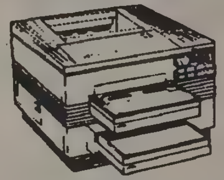
LASERJET IIP PLUS



$739.00

- 300 dpi text, graphics
- Compact desktop size
- Prints 4-PPM

LASERJET IIID & IIISi

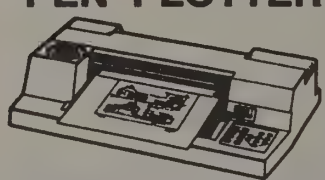


Best Price

III D
- Two 200 Capacity Tray
- Duplex Print Out

III Si
- 17 PPM
- Two 500 Capacity Tray
- Perfect for network

PEN PLOTTER 7475A



$1295.00

- High quality color graphics
- 2 Media sizes for business and CAD
- Wide range of graphics software support

** All HP Advertised prices reflect 2% cash discount*

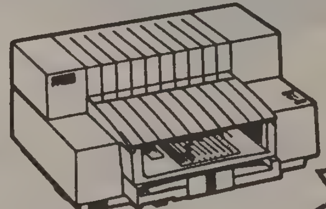
DESKJET 500

[illegible]

- 300 dpi Output
- Wide variaty of built-in fonts
- 16K receive buffer
- 3 years warranty

$359.00

DESKWRITER COLOR for MAC

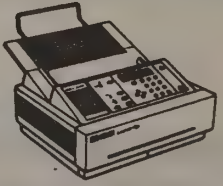


Color Output

- 300 dpi quality
- Built-in fonts
- Apple Talk with DeskWriter
- 3 Year Warranty

$659.00

LASERJET FAX



Call for Best Price

- Laser printered faxes on plain paper
- Send faxes from the PC
- Standalone Operation
- Sends hard copy documents

*** Ask about Micro City Revolving Credit Plan ***

SANTA ANA
1510 S. LYON ST.
(714) 543-4922
LYON & EDINGER
M-F 9:00-6:00
Sat 10:00-5:00

CITY OF INDUSTRY
17351 E. GALE AVE.
#A
(818) 912-6777
NEXT TO COSTCO
M-F 9:00-6:00
Sat 10:00-5:00

VAN NUYS
6265 SEPULVEDA BLVD.
#15
(818) 781-0698
NEXT TO ROGERSOUND
M-F 9:00-6:00
Sat 10:00-5:00

SAN JUAN CAPISTRANO
33959 DOHENY PARK RD.,
#B
(714) 489-0226
IN PRICE CLUB PLAZA
M-F 9:00-6:00
Sat 10:00-5:00

* **SAN DIEGO**
3365 ROSECRANS St.,
#C
(619) 523-0510
M-F 9:00-6:00
Sat 10:00-5:00

* **SAN DIEGO**
9370 Waples St.,
Mira Mesa
(619) 552-9355
M-F 9:00-6:00
Sat 10:00-5:00

* In San Diego, Prices good with AD only!

• Stock may not be available in some stores. • Master Card, VISA accepted. • Prices good thru Aug. 31, 1992 • Prices subject to change without notice.

WHEN IT COMES TO LOW PRICES, GREAT SERVOCE AND SELECTION.

We've Got You Covered!

MICRO CITY
COMPUTER SUPERSTORE

Panasonic Office Automation OA

KX-P2180 COLOR

In Stock!

- Quiet printer
- Color Option
- 9 pin

$184.00

Manager's Special

GST 386SX, 25MHZ SYSTEM

ONLY $869

- 2MB RAM
- FDC/HDC IDE Card 1:1
- 1.2M Floppy Drive
- 52MB Hard Drive
- 2 Serial/Parallel ports
- SVGA Monitor
- SVGA Card
- 101 Enhanced Keyboard

EPSON Authorized Dealer & Service Center

Action Printer 3250

New!

- Ability to print on
- letterhead & envelopes
- Scalable from 8 to 32 points
- 250 cps Draft mode; 90 cps in the Letter mode
- 2 years warmaty &
- Free telephone support

$219.00

Panasonic Office Automation OA

KX-P2123 Color Printer

In Stock!

- 14K Buffer
- Quiet printer
- Color Option
- 24 pin

$249.95

GST 386, 33MHZ w/64K CACHE SYSTEM

- 4MB RAM
- 64K Cache Memory
- FDC/HDC IDE Card 1:1
- 1.2M & 1.44M Floppy Drive
- **120MB Hard Drive**
- 2 Serial/Parallel ports
- Super VGA Monitor w/1MB SVGA Card
- 101 Enhanced Keyboard

Call for pricing on other configurations

$1335.00

SONY

EDUCATION BUNDLE
SONY CD LASER LIBRARY

- Laser Library CD-ROM system
- Compton's Family Encyclopedia
- Language of the World
- Microsoft Bookshell 1991 Edition
- Sony Headphones
- IBM XT/AT or Compatible Interface

$495.00

SCEPTRE®

Best Buy!

Non-Interlaced
14", 1024x768
Super VGA Monitor
& 1MB Non-Interlaced
Super VGA Card

$429.00

GST 486, 33MHZ w/256K CACHE SYSTEM

1024x768

- 4MB Memory
- **120MB Hard Drive**
- 256K Cache Memory
- IDE 1:1 Controller
- 1.2M & 1.44M Floppy Drive
- 2 Serial/Parallel ports
- Super VGA Monitor w/1MB SVGA Card
- 101 Enhanced Keyboard

(MINITOWER/DESKTOP)

$1695.00

TOSHIBA

In Touch with Tomorrow

NEW !

Lower Prices On All Models!

T2000SXe/40

- 40MB HDD
- LCD VGA
- 16 Gray Scale
- 386SX-20MHZ
- 1MB RAM Exp. to 8MB

T2200SX/80

- 386SX-20MHZ
- 2MB RAM Exp. to 10MB
- 80MB HDD
- VGA 9.5" Diag. Screen
- Only 5.5 Lbs.

QUANTUM

52MB, IDE Hard Drive

$210.00

Pacific Data Products

91 Fonts for **DeskJet 500** family "25 in One"

$109.00

NEW

LOGITECH

Mouseman Serial ver.

$45.00

SMARTONE

96/72/48/24 bps Send/Receive FAX/Modem

$79.00

MICRONICS 486SX, 50MHZ, ISA SYSTEM

- 4MB RAM
- FDC/HDC IDE Card 1:1
- 1.2M & 1.44M Floppy Drive
- **200MB Hard Drive**
- 2 Serial/Parallel ports
- Super VGA Monitor w/1MB SVGA Card
- 101 Enhanced Keyboard

$2649.00

T3300SL/80

- 25MHZ I386 SL CPU
- 2MB RAM Exp. to 8MB
- 80MB HDD
- VGA 9.5" Diag. Screen

T4400SX/80

- 486SX-25MH CPU
- 2MB RAM Exp. to 16MB
- 80MB HDD
- VGA Black & White Display
- 64 Gray Scale

MICRO CITY
0123 4567 0000
YOUR NAME

APPLY FOR YOUR OWN MICRO CITY CREDIT CARD. APPROVAL IN 30 MINUTES IN MOST CASES !!!

SERVICE CENTER

Open 6 Days a Week!

Each Micro City location is staffed by factory trained techniciens to assist you in your repair and technical needs !

T5200C/200

- Inter 386-20 MHZ CPU
- 2MB RAM Exp. to 14MB
- 32K Cache
- 200MB HDD
- Gas Plasma

T6400DX/SX

- Intel 486DX/SX-33/25MH CPU
- 32 bit
- 4MB RAM Exp. to 20MB
- 120/200MB HDD
- 756 Colors

• Stock may not be available in some stores. • Master Card, VISA accepted. • Prices good thru Aug. 31, 1992 • Prices subject to change without notice.

continued from page 69

that programmers use to write C code is called a compiler, and there are several competing C compilers for each major operating system.

HOW PEOPLE BECOME PROGRAMMERS

Many of the younger professional programmers you meet tell you that they started out as hobbyist programmers on first-generation personal computers. More senior programmers, who grew up before personal computers, tend to have backgrounds in business data processing, science, or engineering. What should you do if you want to be a programmer?

TAKE A COURSE?

Many universities have departments of Information and Computer Science that offer courses on programming. Practical programmers tend to be skeptical about the theoretical orientation of academic programming courses. A really skillful programmer can earn a lot more than what a community college pays an instructor, but there are still people who teach for the love of teaching.

READ A BOOK?

Library shelves and bookstore racks groan under the weight of computer books, and new ones are published every week. For the Macintosh, Addison-Wesley publishes the standard reference books. For MS-DOS, Microsoft Press offers a wide range of titles for programmers. Also dependable are the handbooks published by Que, SAMS, and Brady (all three are now divisions of Prentice Hall Computer Publishing).

FOOL AROUND?

Macintosh users get a toy programming environment for free. It's called HyperCard and it lets you write "scripts" in a lovely, almost-natural language called HyperTalk. HyperTalk scripts are attached to "objects," not written out in great continuous blocks of code. You can't create "real" stand-alone, heavy-duty appplications in HyperCard, but you can discover whether or not programming appeals to you.

Many popular software packages contain their own little user-accessible programming languages hidden behind the term "macro." A macro is a series of commands or instructions written by a user, and saved in a file that a program can execute on request. Macros can be used to automate repetitive tasks, manipulate data, and control the flow of the program. You can do some amazing things with macros in WordPerfect or Excel if you take the time to study the manuals, work through the tutorials, and learn by doing.

BUY A COMPILER?

If you are serious about programming, at some point you have to sit down and start thumping the keyboard (and clicking mouse buttons). This means you want a high-performance, industrial-strength compiler like those published by Borland (Turbo C) or Symantec (Think C).

JOIN A GROUP?

Aspiring Mac programmers should hook up with the Apple Programmers and Developers Association (APDA). Many local user groups have special interest groups for programmers. You definitely need a modem—the major national online services such as CompuServe, GEnie, America Online, and Prodigy offer extensive forums, download libraries, and other services useful to beginning programmers.

APPRENTICE YOURSELF TO A GURU?

The best way to learn any craft is to find someone who knows it supremely well and is willing to teach you by example, guided practice, stern correction, and gentle admonishment. In exchange, you make yourself useful in the performance of small, real tasks.

For most of human history this was how people learned to be masons, alchemists, musicians, or healers. This would be a good way for people to learn programming, if the social organization of time, work, and money would only make it easier to create such situations.■

Songtech International, Inc.

TEL: 510-770-9051
FAX: 510-770-9060

POWERFUL PORTABLES!

386-SX NEW
NOTEBOOK COMPUTER
- 386SX-20 CPU
- 2 MB Memory Exp to 4 MB
- 60 MB Hard Disk (80 MB Available)
- 3.5" 1.44 MB FDD
- Serial/Parallel/VGA Port
- VGA Backlit Screen 640x480
- AC/DC Adapater & Fast Charger Option
- Runs on Ni-Cad AA Size Batteries
- 80 Key Keyboard
- Only 11.5" (L) x 8.5" (W) x 2" (H)
- Only 5.7 LBS

$1450

CRT PORTABLE
w/9" MONITOR (720x350 TTL)....$345

GAS PLASMA PORTABLE
- High Resolution Gas Plasma Display
- 640x400 Pixel Graphics Display CGA/VGA
- 80 Characters x 25 lines
- 9.25" x 6"
- Detachable 84-Key Keyboard
- 110/220 VAC Auto Switching
- RS-232 Serial Port
- Parallel Printer Port
- External Monitor Port
- Soft carrying bag

$1155 VGA

$1295 VGA+

KINGTECH
LCD PORTABLE
- 640 x 480 Supertwist LCD Screen w/Built-in Backlight
- Run VGA/EGA/CGA/MGA Mode
- 200 Watt 110/220 Auto Switch P/S
- Detachable 89-Key Keyboard
- Two 5.25" FDD, One 3.5" HDD
- Six Expansion Slots
- Weight: 16 lbs.
- Dimensions: 16" (W) x 9" (H) x 7" (D)

$795 VGA

SYQUEST 44MB REMOVABLE HARD DRIVE INCLUDES:

44 MB HARD DRIVE, 2 cartridges, 1 SCSI ADAPTER
External Available

$475

NEW GENERATION OF CASES

MINI TOWER

MID TOWER

COMPLETE SYSTEMS & PERIPHERALS

486-50 MHz (EISA)	$1650
486-33 MHz (EISA)	$1395
486-50 MHz w/64K Cache	$1145
486-33 MHz w/64K Cache	$695
386-40 MHz w/64K Cache	$435
386-25 MHz	$425
386-25 MHz	$375
386-25 SX	$335
386-16 SX	$295
286-12 MHz	$240

SYSTEM CONFIGURATIONS:
- QUALITY MOTHERBOARD
- 1 MB MEMORY
- 1.2 OR 1.44 MB FLOPPY DRIVES
- 1:1 FDD/HDD CONTROLLER
- MULTI I/O (2S/1P/1G)
- AT CASE w/200 WATT P.S.
- ENHANCED 101 KEYBOARD

KEYBOARDS

Enhanced 101 Click (baby)	$29
MTEK 104 (click)	38
Maxi-Switch 101	35
Omnikey Ultra 130	99
Omnikey 101/102	69
BTC 101	25

COMPUTER CHASSIS

Slide-In Case w/200W PS	$69
Mini-Tower w/200W PS	59
Med-Tower w/200W PS	85
Big-Tower w/300W PS	445
Full-Tower w/230W PS	115

POWER SUPPLY

230W XT/AT	$45
285W AT	55
300W AT	65
200W AT	39

EPROM PROGRAMMERS

EPROM Programmer, EW-901B (1 Port)	$95
EPROM Programmer, EW-904B (4 Ports)	125
EPROM Programmer, EW-701 (1 Port)	125
EPROM Programmer, EW-704 (4 Ports)	160
EPROM Programmer, EW-708 (8 Ports)	235
EPROM Eraser (with Timer, 15 Chips)	90
Universal Programmer & Tester Expro-60	525

HARD DISK SPECIALS

HH1050 44 MB MFM	$150
Conner 120 MB 19ms IDE	310
Conner 200MB 19ms IDE	545
Quantum 52 MB IDE	205
Quantum 120 MB IDE	315
Seagate 210 MB, 15ms IDE	575
Quantum 240 MB	640
Maxtor 130 MB 16ms IDE	315

CONTROLLER CARDS

MFM 1:1 Controller	$30
IDE I/O	25
AT I/O (2S/1P)	12
IDE Card	14

MONITORS & DISPLAY CARDS

12"/14" Mono	$79/95
Super VGA 0.28 1024x768	265
Oak VGA Card 16 Bit, 256K	35
Trident Super VGA 16 Bit, 1 MB	80
Nanao 16" 9070U	945
Sony 1304HG 14"	585
Impression 14" Super VGA	275
Impression 14" Non-Interlace	315

OTHER MODELS AVAILABLE
CALL FOR BEST PRICES
DEALER INQUIRIES WELCOME

44061 So. Grimmer Blvd., Fremont, CA 94538

"... If you want excellent results, at one of the best price points you can find, local bus systems like the Essence / Orchid combination deserves serious attention.*Computer Shopper, July Issue 1992*

ESSENCE of a BUS STATION!

Imagine a 32 bit Local BUS Graphics Accelerator with Windows!

Essence Group's Powerful and advanced designs have satisfied many Fortune 500 companies, corporations, and educational institutions. Now with the introduction of the latest technology from ViewSonic's 72Hz Refresh rate Monitors and ORCHIDS's 32 bit local bus is the S3 Chipset accelerator. It not only increases your Window performance, but also CAD/CAM and other graphic intensive applications. With Essence Group's unconditional 30 day money back guarantee and 1-year limited warranty on parts & labor, gives you the buyer confidence in our systems. No matter what you use your computer for, if speed and performance are what you want, the Essence Group delivers it to you!

NEW

MICROSOFT.
WINDOWS.
intel inside

486DX BUS STATION

RegularPricing / **CASH PRICE**

Local Bus 486DX-50
$1630.00(1570.00)
Local Bus 486-DX-33
$1365.00(1310.00)

- * Orchid 486DX-33/DX-50 M/B
- * 256K High speed Cache
- * 4MB Memory on board expandable upto 32MB
- * TEAC 1.2M & 1.44M FDD
- * IDE Floppy & Hard Disk Controller
- * Orchid IIs-D 1MB **Local Bus** VGA Card
- * 2 Serial / 1 Parallel / 1 Game
- * CS-35 Mid-Vertical Case
- * 230Watts UL Power Supply
- * Focus 6000 Keynboard

UPGRADE OPTIONS

50MHz	$385.00
340MB (13ms) HDD	$300.00
UltraStor Caching Controller w 2MB	$270.00

ORCHID

COMPUTER SHOPPER

ViewSonic® PC Sources MICROTIMES.

Novell Networking

With the *ESSENCE* Group Solutions, you can now have the ease and complete capabilities of the most advanced network technology available. Whether you need a single component or a complete network. At the *ESSENCE* Group we will help you obtain exactly what you need.

Let our experienced and trained staff of certified NOVELL engineers assist you in providing a hassle-free transition into networking. So call ESSENCE direct and find out more information about our *ESSENCE* **Group Networking** solutions.

Optional *ESSENCE* Net Service:

- Network Customization
- Cable Assembly
- Integration of Current PS's
- Network Back-Up Procedures
- Network Expansion Program
- Network Option Upgrades

NOVELL LABS
TESTED AND APPROVED
NOVELL

Novell Certified NetWare Engineer
CNE ON STAFF

GET EXTRA 4% DISCOUNT ON PRE-PAID ORDERS or 2% DISCOUNT ON C.O.D. ORDERS. PERSONAL OR COMPANY CHECKS ALLOW 2 WEEKS TO CLEAR.

All prices & availability suject to change without notice.

ESSENCE Group

ORDER HOT LINE ONLY
(714) 546-3110

17815 NEWHOPE St. #G, FOUNTAIN VALLEY,CA 92708

TECH SUPPORT ONLY (714) 546-7907 FAX (714) 546-[illegible]

"...If you want excellent results, at one of the best price points you can find, local bus systems

THE ESSENCE OF

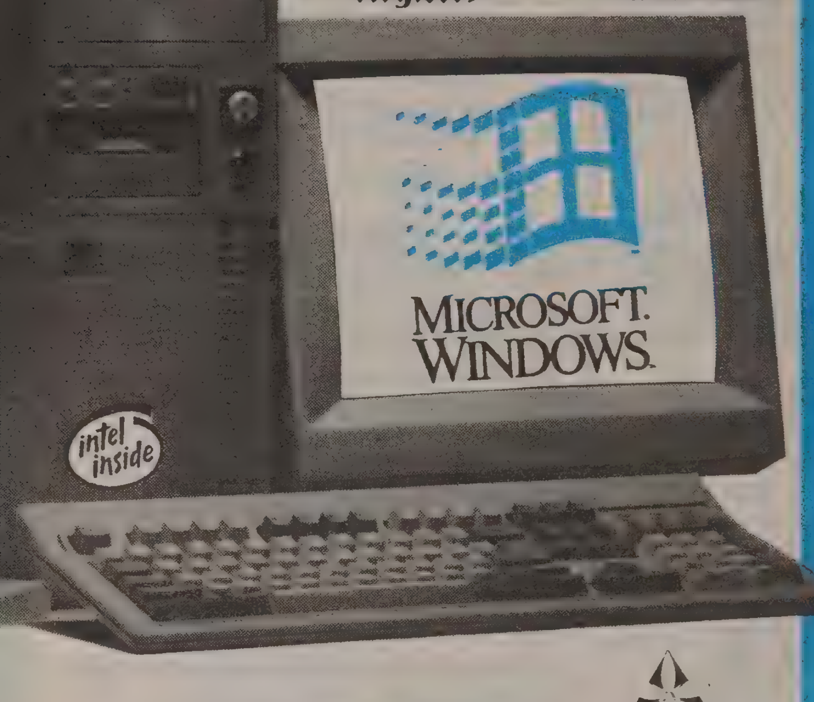
OUR ONE STOP COMPUTER SHOP GIVES YOU THE LAR

COMPUTER SHOPPER

PC Sources

The Orange County Register

MICROTIMES



ORCHID

MICROSOFT.
WINDOWS.

ViewSonic

U.S.A. MADE VEGA 486

	Regular Pricing	CASH PRICE
486DX-50V	$1255.00	(1285.00)
486DX2-50V	$1215.00	(1160.00)
486-DX-33V	$1200.00	(980.00)

- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible] 1.44M FDD
- [illegible] Game
- [illegible]
- [illegible] UL Power Supply
- [illegible] Keyboard

EISA 486DX-50	$1975.00	(1905.00)
EISA 486-DX-33	$1730.00	(1585.00)

- [illegible] M/B
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible] EISA IDE [illegible]
- [illegible] EISA [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]

	Regular Pricing	CASH PRICE
Local Bus 486-DX-33	$1225.00	(1175.00)

- OPTI 486DX-33 M/B
- 64K High speed Cache
- 4MB Memory on board expandable upto 32MB
- TEAC 1.2M & 1.44M FDD
- IDE Floppy & Hard Disk Controller
- S3 1MB **Local Bus** Graphics Accelerator
- 2 Serial / 1 Parallel / 1 Game
- CS-35 Mid-Vertical Case
- 230Watts UL Power Supply
- Focus 6000 Keynboard

	Regular / Pricing	CASH / PRICE
486DX-50U	$1255.00	(1205.00)
486DX2-50U	$1155.00	(1100.00)
486-DX-33U	$960.00	(920.00)

* UMC 486DX-50/DX2-50/DX-33 M/B
* 256K High speed Cache (64K for 33MHz)
* 4MB Memory on board expandable upto 64MB
* TEAC 1.2M & 1.44M FDD
* 2 Serial / 1 Parallel / 1 Game
* CS-35 Mid-Vertical Case
* 230Watts UL Power Supply
* Focus 6000 Keynboard

386DX-40	$595.00	(570.00)
386-DX-33	$575.00	(550.00)

* 386DX-40/DX-33 M/B
* AMD 80386DX-40/DX-33 CPU
* 64K High speed Cache
* 4MB Memory on board expandable upto 32MB
* TEAC 1.2M & 1.44M FDD
* 2 Serial / 1 Parallel / 1 Game
* Mini-Vertical Case
* 200Watts Power Supply
* Focus 6000 Keynboard

386DX-25	$455.00	(435.00)
386SX-25	$405.00	(390.00)

* 386DX-25/SX-25 M/B
* AMD 80386DX-25/SX-25 CPU
* 1MB Memory on board
* TEAC 1.2M & 1.44M FDD
* 2 Serial / 1 Parallel / 1 Game
* Mini-Vertical Case
* 200Watts Power Supply
* Focus 6000 Keynboard

REFER TO NEXT PAGE FOR ADDITIONAL UPGRADES SELECTIONS!

From the Editorial staff of Computer Shopper, July 1992
"...If you want excellent results, at one of the best price points you can find, local bus systems like the Essence/Orchid combination deserves serious attention. *See Page 188 in Computer Shopper, July Issue 1992.*

Commitment to Excellence

Our powerfull and advanced designs have satisfied many Fortune 500 companies, corporations, and educational institutions. *ESSENCE* GROUP - Unconditional 30 day money back gives buyers confidence in our systems and components

which is a value to you.

MONITOR + VIDEO UPGRADES:

For EISA & Local Bus Systems:

	Regular / Pricing	CASH / PRICE
ViewSonic 6E 14" Non-Interlaced Monitor	$350.00	(337.00)
ViewSonic 5E 14" Non-Interlaced Monitor	$418.00	(400.00)
ViewSonic 6FS 15" Non-Interlaced Monitor	$619.00	(595.00)
ViewSonic 7 17" Multi-Frequency Monitor	$1070.00	(1030.00)
ViewSonic 8 20" Multi-Frequency Monitor	$1645.00	(1580.00)

For ISA Systems:

12" Monochrome Monitor w/MonoGraphics Card	$102.00	(98.00)
14" Monochrome Monitor w/MonoGraphics Card	$120.00	(115.00)
14" MonoVGA (Paper-white) Monitor w/16-bit VGA Card (256K)	$159.00	(153.00)
14" Mini-Micro MM1468 VGA Color Monitor (.41dp) w/16-bit VGA Card (256K)	$273.00	(262.00)
14" CTX-5468A SuperVGA Color Monitor (.28dp) w/TVGA-8900C 1MB VGA Card	$360.00	(347.00)
14" CTX-5468NI Non-Interlaced Color Monitor (.28dp) w/TVGA-8900C 1MB VGA Card	$395.00	(380.00)

Call for our complete Monitors & Hard Drives Price List

	Regular / Pricing	CASH / PRICE
14" ViewSonic 6E Non-Interlaced Color Monitor (.28dp) w/TVGA-8900C 1MB VGA Card	$420.00	(405.00)
14" ViewSonic 5E Non-Interlaced Color Monitor (.28dp) w/TVGA-8900C 1MB VGA Card	$488.00	(468.00)
w/Orchid ProDesigner IIs 1MB Hi-Color VGA Card	$556.00	(540.00)
15" ViewSonic 6FS Digital Auto-Tracking Flat-Screen Monitor (.28dp) w/Orchid ProDesigner IIs 1MB Hi-Color VGA Card	$556.00	(540.00)
w/Orchid Fahrenheit 1280 1MB Graphics Accelerator	$840.00	(815.00)
17" ViewSonic 7 Digital Auto-Tracking Monitor (.28dp) w/Orchid Fahrenheit 1280 1MB Graphics Accelerator	$1300.00	(1250.00)
w/ATi Graphics Vantage (1MB)	$1298.00	(1250.00)
w/ATi Graphics Ultra (1MB)	$1460.00	(1405.00)

Hard Disk Subsystem & Other Options (w/Systems):

40MB IDE HDD	$198.00	(190.00)
80MB IDE HDD	$250.00	(240.00)
120MB IDE HDD	$320.00	(308.00)
200MB IDE HDD	$490.00	(470.00)
MicroSoft DOS 5.0	$37.00	
MicroSoft Windows 3.1 w/Mouse	$55.00	
Internal 2400Buad Data Modem	$36.00	
Internal 9600Baud Fax Modem	$66.00	

ESSENCE Group

ORDER HOT LINE ONLY
(714) 546-3110

like the Essence Orchid combination deserves serious attention. *Computer Shopper, July Issue 1992.*

COMPUTER SHOPPING

GESTSELECTION, GREAT CONFIDENCE & EXCELLENT PRICING.

FLOPPY & HARD DISK DRIVES

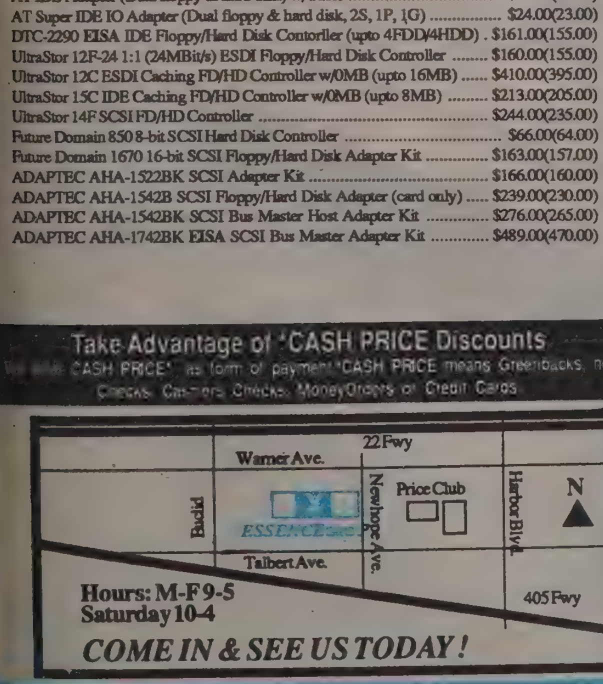
TEAC 1.2MB FDD (5.25")	$60.00(58.00)
TEAC 1.44MB FDD (3.5") w/Mounting Kit	$56.00(54.00)
TEAC 2.88MB FDD (3.5") w/Mounting Kit & Controller	$166.00(160.00)
Panasonic 1.2MB FDD (5.25")	$59.00(56.00)
Panasonic 1.44MB FDD (3.5") w/Mounting Kit	$55.00(52.00)
Conner CP-3000 40MB IDE HDD (29ms)	$203.00(195.00)
Conner CP-30084 80MB IDE HDD (17ms)	$257.00(247.00)
Conner CP-30104 120MB IDE HDD (17ms)	$320.00(308.00)
Conner CP-3204F 210MB IDE HDD (16ms)	$560.00(540.00)
Maxtor MX-7080A 80MB IDE HDD (17ms)	$275.00(265.00)
Maxtor MX-7080S 80MB SCSI HDD (17ms)	$280.00(270.00)
Maxtor MX-7120A 120MB IDE HDD (15ms)	$328.00(315.00)
Maxtor MX-7120S 120MB SCSI HDD (15ms)	$343.00(330.00)
Maxtor MX-7213A 213MB IDE HDD (15ms)	$494.00(475.00)
Maxtor MX-7213S 213MB SCSI HDD (15ms)	$572.00(550.00)
Maxtor LXT-340A 340MB IDE HDD (13ms)	$745.00(715.00)
Maxtor LXT-340S 340MB SCSI HDD (13ms)	$905.00(870.00)
Maxtor XT-8380E 338MB ESDI HDD (13.5ms)	$1020.00(980.00)
Maxtor XT-8380S 337MB SCSI HDD (13.5ms)	$1020.00(980.00)
Maxtor XT-8760E 676MB ESDI HDD (16.5ms)	$1330.00(1280.00)
Maxtor XT-8760S 675MB SCSI HDD (16.5ms)	$1330.00(1280.00)
Maxtor PO-12 1.2GB SCSI HDD (13ms)	$1715.00(1650.00)
Quantum LPS52AT 52MB IDE HDD (17ms,64K cache buffer)	$229.00(220.00)
Quantum LPS84AT 84MB IDE HDD (17ms,64K cache buffer)	$295.00(285.00)
Quantum LPS105AT 105MB IDE HDD (17ms,64K cache buffer)	$330.00(320.00)
Quantum LPS12A012 120MB IDE HDD (17ms,256K cache buffer)	$340.00(330.00)
Quantum LPS24A012 240MB IDE HDD (15ms,256K cache buffer)	$614.00(590.00)
Seagate ST-351AX 42MB IDE HDD (28ms)	$198.00(190.00)
Western Digital AC280 80MB IDE HDD (17ms)	$250.00(240.00)
Western Digital AC2120 120MB IDE HDD (15ms)	$312.00(300.00)
Western Digital AC2200 209MB IDE HDD (13ms)	$500.00(480.00)
SyQuest SQ555 44MB SCSI Removable Disk Drive	$305.00(293.00)
SyQuest SQ5110 88MB SCSI Removable Disk Drive	$445.00(428.00)
SyQuest SQ400 44MB Cartridge	$75.00(73.00)
SyQuest SQ800 88MB Cartridge	$108.00(104.00)
SyQuest SQ01 SCSI Adapter w/Software (for internal drive only)	$45.00(43.00)

ADD-ON BOARDS

Mono/Graphics/Printer Card	$16.00(15.00)
AVGA-1 VGA Card w/256K	$33.00(32.00)
TVGA-9000 VGA Card w/256K (Trident 9000 Chipset,upto 512K)	$42.00(40.00)
TVGA-8900C 1MB SuperVGA Card (Trident 8900C Chipset)	$71.00(68.00)
PVGA-1C VGA Card w/256K (WD90C11 Chipset,upto 512K)	$52.00(50.00)
PVGA-1D SuperVGA Card w/1MB (WD90C30 Chipset)	$89.00(86.00)
PVGA-1DW Graphics Accelerator w/1MB & Hi-Color Chip (1280x1024)	$140.00(135.00)
ATi VGA Wonder XL VGA Card (32,768colors,OEM Version)	$135.00(130.00)
ATi VGA Wonder XL VGA Card w/Mouse (OEM Version)	$166.00(160.00)
ATi Graphics Vantage 1MB VGA Card w/Mouse (OEM package) - 11 times faster than SuperVGA cards, 1280x1024	$218.00(210.00)
ATi Graphics Ultra 1MB (VRam) VGA Card w/Mouse (OEM package) - 24 times faster than SuperVGA cards, 1280x1024	$380.00(365.00)
Diamond SpeedStar-14F 1MB VGA Card (16Million colors)	$203.00(195.00)
Diamond Stealth 1MB (VRam) Window Accelerator w/Hi-Color Chip	$265.00(255.00)
Orchid Pro-Designer IIs 1MB VGA Card w/Sierra RAMDAC (32,768colors) - 70Hz refresh rate @1024x768	$160.00(155.00)
Orchid Pro-Designer IIs-E 1MB EISA VGA Card w/Sierra RAMDAC (32,768colors) - 70Hz refresh rate @1024x768	$193.00(185.00)
Orchid Fahrenheit 1280 1MB (VRam) Graphics Accelerator w/Sierra RAMDAC -32,768colors, 12 times faster than SuperVGA cards, 1280x1024	$260.00(250.00)
AT I/O (2 Serial 1 Parallel 1Game) Card	$15.00(14.00)
Parallel (Printer) Card	$10.00(10.00)
Game Card (Dual ports)	$11.00(11.00)
AT IDE Adapter (Dual floppy & hard disk) w/Cable	$16.00(15.00)
AT Super IDE IO Adapter (Dual floppy & hard disk, 2S, 1P, 1G)	$24.00(23.00)
DTC-2290 EISA IDE Floppy/Hard Disk Contorller (upto 4FDD/4HDD)	$161.00(155.00)
UltraStor 12F-24 1:1 (24MBit/s) ESDI Floppy/Hard Disk Controller	$160.00(155.00)
UltraStor 12C ESDI Caching FD/HD Controller w/0MB (upto 16MB)	$410.00(395.00)
UltraStor 15C IDE Caching FD/HD Controller w/0MB (upto 8MB)	$213.00(205.00)
UltraStor 14F SCSI FD/HD Controller	$244.00(235.00)
Future Domain 850 8-bit SCSI Hard Disk Controller	$66.00(64.00)
Future Domain 1670 16-bit SCSI Floppy/Hard Disk Adapter Kit	$163.00(157.00)
ADAPTEC AHA-1522BK SCSI Adapter Kit	$166.00(160.00)
ADAPTEC AHA-1542B SCSI Floppy/Hard Disk Adapter (card only)	$239.00(230.00)
ADAPTEC AHA-1542BK SCSI Bus Master Host Adapter Kit	$276.00(265.00)
ADAPTEC AHA-1742BK EISA SCSI Bus Master Adapter Kit	$489.00(470.00)

Take Advantage of 'CASH PRICE Discounts

[illegible] 'CASH PRICE' as form of payment 'CASH PRICE means Greenbacks, not Checks, Cashiers Checks, MoneyOrders or Credit Cards.



Hours: M-F 9-5
Saturday 10-4

COME IN & SEE US TODAY!

MONITORS

CTX5439A 14" SuperVGA Color Monitor (1024x768,.39dp)	$250.00(240.00)
CTX5468A 14" SuperVGA (TriScan) Color Monitor (1024x768,.28dp)	$290.00(279.00)
CTX5468NI 14" Non-Interlaced Color Monitor (1024x768,.28dp)	$325.00(312.00)
CTX1760 17" Flat-Screen Multi-Freq Monitor (1280x1024,.28dp)	$1035.00(995.00)
NEC MultiSync 3FGx 15" Color Monitor (1024x768,.28dp)	$670.00(645.00)
NEC MultiSync 4FG 15" Color Monitor (AccuColor & Digital Controls 1024x768,.28dp)	$780.00(750.00)
NEC MultiSync 5FG 17" Color Monitor (AccuColor & Digital Controls 1280x1024,.28dp)	$1480.00(1425.00)
NEC MultiSync 6FG 21" Color Monitor (AccuColor & Digital Controls 1280x1024,.28dp)	$2980.00(2865.00)
Sony CPD-1304S 14" MultiScan Monitor (Non-Interlaced,.25dp)	$598.00(575.00)
Sony CPD-1604S 17" MultiScan Monitor (Non-Interlaced,.25dp)	$1120.00(1075.00)
Mini-Micro MM1256A 12" Amber Monitor	$86.00(83.00)
Mini-Micro MM1457A 14" Amber Monitor	$104.00(100.00)
Mini-Micro MM1457W 14" Paper-white Monitor	$106.00(102.00)
Mini-Micro MM1467L 14" Paper-white MonoVGA Monitor	$126.00(121.00)
Mini-Micro MM1468 14" VGA Color Monitor (640x480,.41dp)	$240.00(230.00)
ViewSonic4E 14" SuperVGA Color Monitor (1024x768,.28dp)	$318.00(306.00)
ViewSonic6 14" Non-Interlaced Color Monitor (1024x768,.28dp)	$359.00(345.00)
ViewSonic6E 14" Non-Interlaced Color Monitor (1024x768,.28dp)	$350.00(337.00)
Viewsonic5E 14" Non-Interlaced Color Monitor (1024x768,.28dp 72Hz refresh rate @1024x768)	$418.00(400.00)
ViewSonic5+ 14" Non-Interlaced Color Monitor (1024x768,.25dp Trinitron tube, 70Hz refresh rate @1024x768)	$520.00(500.00)
ViewSonic6FS 15" Multi-Frequency Color Monitor (Flat-Screen, Low radiation, 1280x1024,.28dp, 72Hz refresh rate @1024x768)	$619.00(595.00)
ViewSonic7 17" Multi-Frequency Color Monitor (Digital Auto-Tracking Flat-Screen, Low radiation, 1280x1024,.28dp)	$1080.00(1040.00)
ViewSonic8 20" Multi-Frequency Color Monitor (Digital Auto-Tracking Low radiation, 1280x1024,.31dp)	$1645.00(1580.00)

KEYBOARDS

Focus-2001 101keys Keyboard w/Hard Dustcover (Click)	$44.00(42.00)
Focus-5001 130keys Keyboard (Dble function keys, calculator, etc.)	$60.00(58.00)
Focus-6000 101keys Keyboard (Soft click)	$38.00(37.00)
Focus-7000 108keys Keyboard (Diagonal Arrows keys, Soft click)	$40.00(39.00)
Focus-8000 111keys Keyboard (Calculator, Soft click)	$46.00(45.00)
Focus-9000 128keys Keyboard (Programmable, same as 5001 K/B)	$72.00(70.00)
Fujitsu-4700 101keys Keyboard	$47.00(45.00)
Honeywell-101WN 101keys Keyboard (3yr. warranty)	$40.00(38.00)
KT-2000 101keys Keyboard (Keytronic made)	$44.00(43.00)

SYSTEM BOARDS (0K)

Orchid SuperBoard 486DX-50MHz M/B w/256K Cache (Local Bus)	$935.00(900.00)
Orchid SuperBoard 486DX-33MHz M/B w/256 K Cache (Local Bus)	$700.00(675.00)
-w/Orchid ProDesigner IIs-D 1MB Local Bus Card	*+$182.00(175.00)*
-w/Orchid Fahrenheit 1280-D 1MB Local Bus Card	*+$245.00(235.00)*
OPTI Baby 486DX-33MHz EISA Local Bus M/B w/256K Cache	$800.00(770.00)
OPTI Baby 486DX-33MHz Local Bus M/B w/64K Cache	$550.00(530.00)
-w/Tseng Lab ET-4000 1MB Local Bus Card & IDE Multi IO	*+$170.00(165.00)*
-w/S3 1MB Local Bus Graphics Accelerator & IDE Multi IO Card	*$+280.00(270.00)*
VEGA Baby 486DX-50MHz EISA M/B w/256K Cache (USA made)	$1175.00(1130.00)
VEGA Baby 486DX-33MHz EISA M/B w/256K Cache (USA made)	$957.00(920.00)
OPTI Baby 486DX-50MHz EISA M/B w/256K Cache	$1125.00(1080.00)
VEGA Baby 486DX-50MHz M/B w/256K Cache (USA made)	$865.00(830.00)
VEGA Baby 486DX2-50MHz M/B w/256K Cache (USA made)	$745.00(715.00)
VEGA Baby 486DX-33MHz M/B w/64K Cache (USA made)	$598.00(575.00)
UMC Baby 486DX-50MHz M/B w/256K Cache (Write-back cache)	$805.00(775.00)
UMC Baby 486DX2-50MHz M/B w/256K Cache (Write-back cache)	$707.00(680.00)
UMC Baby 486DX-33MHz M/B w/64K Cache (Write-back cache)	$540.00(520.00)
OPTI Baby 486DX-50MHz M/B w/256K Cache (Write-back cache)	$800.00(770.00)
OPTI Baby 486DX2-50MHz M/B w/256K Cache (Write-back cache)	$728.00(700.00)
OPTI Baby 486DX-33MHz M/B w/64K Cache (Write-back cache)	$540.00(520.00)
OPTI Baby 386DX-40MHz M/B w/64K Cache (Write-back cache)	$234.00(225.00)
UMC Baby 386DX-40MHz M/B w/64K Cache (Write-back cache)	$239.00(230.00)
OPTI Baby 386DX-33MHz M/B w/64K Cache (w/Intel CPU)	$224.00(215.00)
OPTI Baby 386DX-33MHz M/B w/64K Cache (w/AMD CPU)	$213.00(205.00)
UMC Baby 386DX-33MHz M/B w/64K Cache (w/Intel CPU)	$229.00(220.00)
UMC Baby 386DX-33MHz M/B w/64K Cache (w/AMD CPU)	$219.00(210.00)
C & T Baby 386DX-33MHz M/B w/256K Cache (w/Intel CPU)	$247.00(237.00)
C & T Baby 386DX-33MHz M/B w/256K Cache (w/AMD CPU)	$236.00(227.00)
**** 256K Cache upgrade from 64K for all 486 and 386 M/B*	*$45.00*
OPTI Baby 386DX-25MHz M/B (w/Intel CPU)	$185.00(178.00)
OPTI Baby 386DX-25MHz M/B (w/AMD CPU)	$177.00(170.00)
C & T Mini 386SX-25MHz M/B	$137.00(132.00)
Headland Mini 386SX-25MHz M/B	$132.00(127.00)

Terms & Conditions: All parts and systems carry a One Year Limited Warranty except monitors and printer which warranty by manufacturers. All sales on Monitor, Printer and Hard Disk Drives are final. NO REFUND> All returns are subjected to our approval and must have prior authorization. Return items must be in it's original condition, send shipping prepaid. All refunds or credits are less shipping and bank charges. All refunds items must be returned within 14 days of invoice. There will be a 20% restocking fee after the 7 days period and within 30 days of invoice. Thereafter, only exchanges are available during the rest of the warranty period. Price, Specification & Availability subject to change without any notice. All prices subject to change without notice.

POWER SUPPLIES

XT-150W Power Supply	$34.00(32.00)
Mini-AT 200W Power Supply (XT-size)	$40.00(38.00)
AT-200W Power Supply (Full size)	$45.00(43.00)
PS-2 200W UL Power Supply (for Mini-Tower or Baby-AT cases)	$45.00(43.00)
PS-2 230W UL Power Supply (for Mini-Tower or Baby-AT cases)	$48.00(46.00)

CHASIS

CS-20 Baby AT Case w/200W UL P.S. (3x5.25",2x3.5")	$84.00(81.00)
CS-22 Slim Line Case w/200W UL P.S. (2x5.25",2x3.5")	$87.00(84.00)
CS-35 Mid Vertical Case w/230W UL P.S. (3x5.25",3x3.5",Digital)	$106.00(102.00)
CS-36 Full Vertical Case w/230W UL P.S. (6x5.25",2HD,Digital)	$135.00(130.00)
CS-M1 Mini Vertical Case w/200W P.S. (2x5.25",3x3.5",Digital)	$70.00(67.00)
CS-M2 Mini Vertical Case w/200W P.S. (2x5.25",3x3.5")	$68.00(65.00)
CS-510 Baby AT Case w/200W P.S. (3x5.25",1x3.5")	$66.00(64.00)
CS-931 Mini Vertical Case w/200W P.S. (2x5.25",3x3.5",Digital)	$70.00(67.00)
CS-923 Mid Vertical Case w/200W P.S. (3x5.25",3x3.5",Digital)	$92.00(88.00)
CS-912 Full Vertical Case w/230W UL P.S. (4x5.25",2HD,Digital)	$123.00(118.00)
Diamond Series: (Black color model available +$3.00)	
CS-130 Full Vertical Case w/250W UL P.S. (4x5.25",2HD,Digital)	$156.00(150.00)
CS-230 Mid Vertical Case w/250W UL P.S. (4x5.25",2HD,Digital)	$146.00(140.00)
CS-330 Mini Vertical Case w/220W UL P.S. (2x5.25",3x3.5",Digital)	$90.00(87.00)
CS-530 Desktop Case w/250W UL P.S. (2x5.25",2x3.5",2HD,Digital)	$103.00(99.00)
CS-730 Baby AT Case w/250W UL P.S. (2x5.25",1x3.5,1HD,Digital)	$94.00(91.00)
CS-830 Slim Line Case w/220W UL P.S. (1x5.25",1x3.5",1HD,Digital)	$90.00(87.00)

PRINTERS

Citizen 200GX Printer (9pin/213cps/80col/color option)	$168.00(162.00)
Citizen GSX-130 Printer (24pin/180cps/80col/color option)	$241.00(232.00)
Citizen GSX-140+ Printer (24pin/220cps/80col/color option)	$296.00(285.00)
Citizen GSX-145 Printre (24pin/192cps/132col/color option)	$375.00(360.00)
**** Color Kit for Citizen 200GX, GSX-130 or GSX-140+*	*+45.00*
Panasonic KX-P1180i Printer (9pin/240cps/80col)	$159.00(154.00)
Panasonic KX-P1123 Printer (24pin/240cps/80col)	$199.00(192.00)
Panasonic KX-P1124i Printer (24pin/300cps/80col)	$289.00(279.00)
Panasonic KX-P1624 Printer (24pin/192cps/132col)	$364.00(350.00)
Panasonic KX-P2180 Quiet Printer (9pin/240cps/80col/color option)	$179.00(172.00)
Panasonic KX-P2123 Quiet Printer (24pin/240cps/80col/color option)	$249.00(239.00)
Panasonic KX-P2124 Quiet Printer (24pin/320cps/80col/color option)	$333.00(320.00)
Panasonic KX-P2624 Quiet Printer (24pin/300cps/132col)	$398.00(385.00)
**** Color Kit for Panasonic KX-P2180, KX-P2123 or KX-P2124*	*+45.00*
Panasonic KX-P4410 Laser Printer (5ppm/512K/300dpi)	$649.00(635.00)
Panasonic KX-P4430 Laser Printer (5ppm/1MB/300dpi)	$915.00(880.00)
Star NX-1001 Multi-Font Printer (9pin/180cps/80col)	$139.00(135.00)
Star NX-1020R Color Printer (9pin/180cps/80col)	$179.00(175.00)
Star NX-2430 Multi-Font Printer (24pin/250cps/80col)	$244.00(235.00)
Star NX-2420R Rainbow Color Priner (24pin/250cps/80col)	$289.00(278.00)
Star SJ-48 StarJet InkJet Printer (4lbs,166cps,360dpi)	$308.00(296.00)

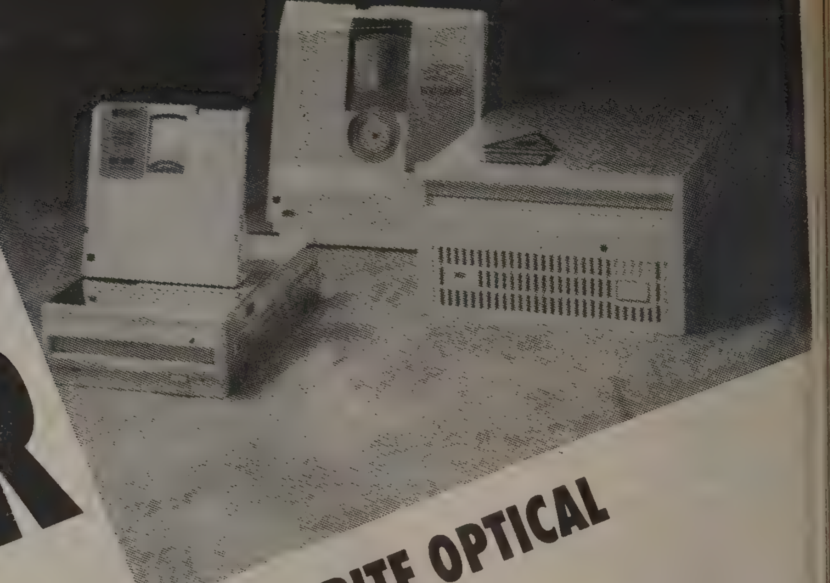
MISCELLANEOUS

Mitsumi Internal CD-ROM w/Controller	$250.00(240.00)
Sony Internal CD-ROM Drive w/Controller	$343.00(330.00)
Sony External CD-ROM Drive w/Controller	$380.00(365.00)
**** CD Package - Illustrated Encyclopedia, National Geographics, Reference Library, US Atlas / World Atlas, CD Game Pack II*	*$145.00*
Sound Card w/Speakers (Ad-Lib compatibale)	$75.00(72.00)
Sound Blaster Pro	$203.00(195.00)
Logitech Dexxa Mouse	$28.00(27.00)
Logitech First Mouse	$42.00(39.00)
Logitech Serial MouseMan	$58.00(56.00)
Logitech Bus MouseMan	$70.00(68.00)
Logitech PS-2/Serial Combo MouseMan	$70.00(68.00)
Logitech ScanMan 32 (Hand-held Scanner)	$148.00(144.00)
Logitech ScanMan 256 (Grey Scale Scanner)	$265.00(255.00)
Logitech ScanMan 256 w/Perceive Personal OCR Software	$310.00(298.00)
MicroSoft Serial Mouse	$89.00(86.00)
MicroSoft Bus Mouse	$91.00(88.00)
Z-Nix Super Mouse	$19.00(18.00)
Z-Nix SuperMouse w/MicroSoft Windows 3.1	$65.00(64.00)
Smart-One Internal 2400 Baud Data Modem	$44.00(42.00)
Smart-One External 2400 Baud Data Modem	$67.00(65.00)
Smart-One Internal 9600/4800/2400 Send/Receive Fax/Data Modem	$80.00(78.00)
U.S. Robotics Sportster 2400PC Internal Data Modem	$124.00(119.00)
U.S. Robotics Sportster 2400 External Data Modem	$143.00(137.00)
U.S. Robotics Sportster 9600PC Internal Data Modem (V.32/V.42bis)	$311.00(299.00)

ORDER HOT LINE ONLY

(714) 546-3110

TECH SUPPORT ONLY (714) 546-7902 FAX (714) 546-3803



The Next Evolution of Power From CLOVER

Most people think all computer systems are the same. And many company are perfectly happy to leave that impression. The truth is no one else puts more behind their computers than CLOVER. With clover's system, you get the kind of service, quality and performance that you always wanted.

TEL: 800 • 999 • 6899

READ/WRITE OPTICAL DISK DRIVES

Announcing really big news in a really small package. BYTE magazines May 1992 issue reports that the 3 1/2" MO drive (The Magneto-Optical disk device) is now available for your desktop. This is a standardized, affordable, high capacity, random-access removable desktop storage device. It is a Read/Write optical disk drive-not read-only like a CD-ROM. The best read/write optical disk drive for multi-media applications. Available in 3 1/2"(128MB) & 5 1/4"(560MB) cartridges. Call today for additional information !!!!

CLOVER 386/33 DX $1329

- Intel 80386/33 Processor
- 64K Cache RAM (Expandable to 256K)
- Desktop Case w/200W UL Power Supply (Vertical option)
- 4MB RAM Expandable to 32MB
- TEAC 1.2MB & 1.44 MB Floppy Drives
- 120MB IDE Hard Drive w/Cache
- 16-bits High-Color SVGA, w/1MB RAM. VESA mode, Support up to 1024 x 768 Res. with 32,768 Colors.
- AcerView 33 0.28 DP 14" SVGA Monitor
- 2 Serial, 1 parallel and 1 Game port
- 101K Mechanical Tactile Keyboard
- Microsoft Dos 5.0
- Window 3.1 andl high-Res. Mouse

CLOVER 386/25 DX $1299 (w/o Cache)

CLOVER 386/33 SX $1129

CLOVER 386/33 SX

- 2MB RAM Expandable to 32MB
- 40MB IDE Hard Drive
- 1MB SVGA Card, Support 1024 x 768 w/256 Colors

CLOVER 386/25 SX $1039 (w/o Cache)

Satisfaction Guarantee

30 days money back guarantee.
1 year parts and 2 years labor warranty.
Lifetime technical support.
No Surcharge for Visa or Master Card.
Customize Systems.
All Systems are pretested with a 48 hours burn-in.
FCC Class B Approved on all Systems.

TOTAL WINDOW POWER SOLUTIONS

LOCAL BUS 486/33 DX

- Intel 80486/33 Processor w/8K Internal Cache & Build-in Math Coprocessor
- 64K Cache RAM (Expandable to 256K)
- Mini Tower Case w/200W UL Power Supply (6 Base Drives Capacity)
- 4MB RAM Expandable up to 32MB
- TEAC 1,2 MB & 1.44MB Floppy Drives
- 120 MB 15ms IDE Hard Drive w/Cache
- 32-bit SVGA Card and 1MB VRAM, Support up to 1280 x 1024 Res. with 32,768 colors (Option)
- AcerView 34T, 0.28 DP,14" Non-Interlaced SVGA Monitor
- 2 Serial, 1 Parallel and 1 Game port
- 101K Mechanical Tactile Keyboard
- Microsoft Dos 5.0
- Window 3.1 andl high-Res. Mouse.

$1889

EISA 486/33 DX

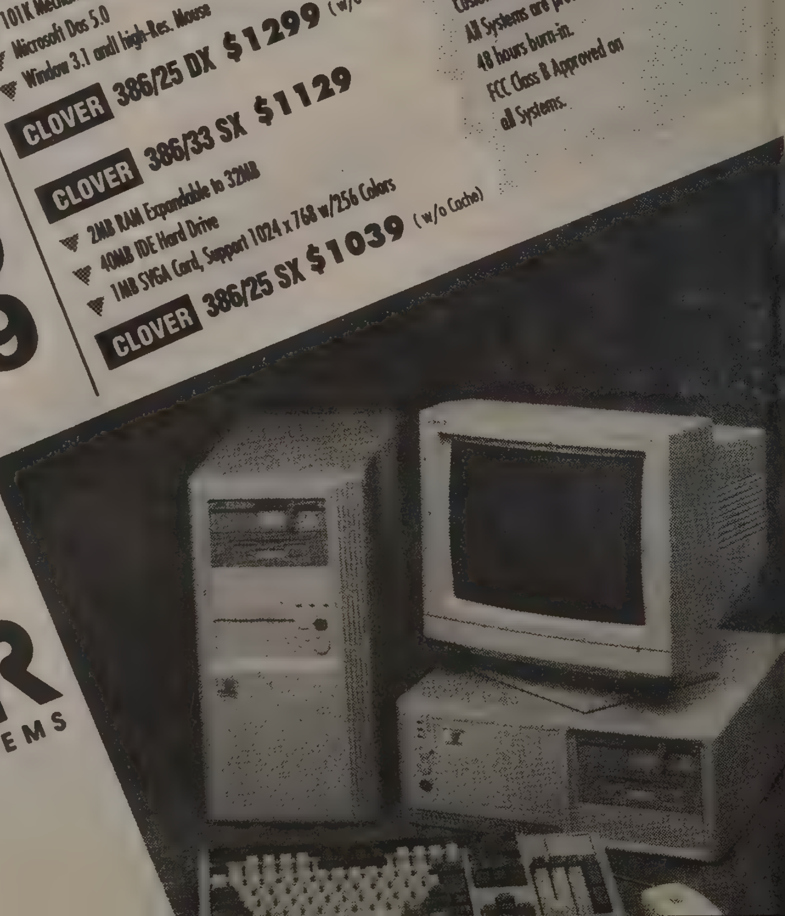
- Intel 80486/33 Processor w/8K Internal Cache & Build-in Math Coprocessor
- 256K Cache RAM, 8 x 32 bit EISA Slots
- Full-Tower Case w/230W UL Power Supply (8 Base Drives Capacity)
- 8MB RAM Expandable up to 128MB
- TEAC 1.2MB & 1.44 MB Floppy Drives
- Ultrastar 32-bit/EISA SCSI Controller w/64K Cache
- 240MB 16ms 256K Cache SCSI Hard Drive
- 32-bit SVGA Card with S3 Chip Set and 1MB VRAM, Support up to 1280 x 1024 Res. with 32,768 Colors (Option)
- AcerView 35, 14" Non-Interlaced SVGA Monitor (Trinitron CRT, Super-fine 0.26 DP)
- 2 Serial, 1 Parallel and 1 Game port
- 101K Mechanical Tactile Keyboard
- Microsoft Dos 5.0
- Window 3.1 andl high-Res. Mouse

$3289 (17" Flate Screen Monitor +$689)

OFFICE HOURS:
MON - FRI, 7:30 a.m.- 6:30 p.m.
SAT, 9 a.m.- 4 p.m. (PST)

15046 East Nelson Avenue, Suite 8
City of Industry, California 91747
Tel: (818) 333-8699
Fax: (818) 333-1499

CLOVER BUSINESS SYSTEMS



PC Land

Tel. (310) 793-0011
Fax (310) 793-0041
16711 Hawthorne Blvd.
Lawndale, California 90260

Absolutely the best service

LAND OF SALES AND SUPPORT
Desktop Publishing, Multimedia
CAD & Networking source
Corporate Consultation Available

PLI 88 MB Syquest ext. drive $649

OCR scanners on demo

AST RESEARCH INC.
authorized Dealer

Premium	
II 386DX-25	1699
486-33	2599
486-33e	call
SE 486 towers	call

OPTICAL DRIVES MAC

Optical 1GB 28ms
External drive **$ 2899**

Plotters setup call..

A-D, E SIZE PLOTTERS

HP DXL	3199
HP EXL	3999
Calcomp	call
A-D Size Plotter	2499
A-E Size Plotter	2999

Professional CAD, Multimedia DeskTop Publishing WorkStations
Your choice of Macintosh, Compaq, AST, Micronics.

MACINTOSH *IN STOCK*

140 4/40	1999
140 4/80	2399
170 4/80	3649
LCII 4/40	1499
IISI, 5/Quantum 120	2229
IICI 5/Quantum 120	2799
Quadra 700/950	3699/5199
Laser IIF/ IIG	2589/3499

newgen

PS 400P	1799
PS 880	3699
PS 1200T	call

Roland DIGITAL GROUP

MPC Multimedia PC

HEWLETT PACKARD

Scanjet +	799
Scanjet IIC	1269
Deskwr C	669
Laserjet III	1399

COMPAQ

Notebooks

lite SL20-84	2495
lite SL25-120	2999
lite SLC25-120	4999

Deskpro EISA

386S-20	1399
386/33 M	2199
486-33M	2599
486-50M	3199
SystemPro	call

LM LASERMASTER TURBORES PRINTER DIVISION

MaxWriter 400	1199
WinPrinter 800	1299
LM 4/8 P 800DPI	call
LM 1000/4 Printer	3499

15"-21" CAD-DTP Monitors

Nanao F550i	1199
Nanao F560i	1899
NEC 5D	1789
Hitachi CM2085	1895
Radius color Pivot	1099
Sigma design	call
Toshiba P21CR	1999

MAC

PCL 1200 DPI 24 bit one pass scanner.	3899
24B EISA video, 4mb VRAM, TI34020(1280)	1199
ColorSnap 32+ image capture device.	995
Pro:MC one device audio-Video control.	989

Prices subject to change without notice. Prices are C.O.D. and reflect cash discount.

continued from page 74

RESOURCES:

Mr. BIOS, $69.95
Microid Research, Inc.
233 D Walsh Ave.,
Suite 6
Santa Clara, CA 95057

Available From:
Smart Micro Technologies, Inc.
143 Triunfo Canyon Rd.
W. Lake Village, CA
91361
1-800-422-9979

Windows or other software that uses the protected mode features of the CPU chips.

Another option lets you boot your computer in its highest-speed mode, called Turbo, or its lowest-speed mode, whatever it's called. This can be done through keyboard commands: Ctl-Alt-+ for turbo and Ctl-Alt-hyphen switches to low speed. Without Mr. BIOS, switching between speeds is normally done through a turbo button on the control panel of the computer.

Other options include:

•The Cache menu lets you set cache timing and sizes, if your computer has the ability to cache memory.

•The Shadow menu allows you to use shadow RAM to increase the speed at which the computer executes BIOS and video memory. You can use the 384K segment of memory between 640K and 1MB. If you are really hungry for memory, Mr. BIOS allows you to map the bottom three-fourths of the BIOS EPROM as UMB space, although you will also need to tell the memory manager to use the F000 area of the BIOS area.

So, can changing a BIOS make any difference? For me, changing to Mr. BIOS fixed a video problem I was experiencing.

•A DMA menu lets you set the DMA clock speed divisor as well as the wait state used. You can divide the ATCLK by 1 for faster DMA operation and can set wait states from 1 to 4 for both 8- and 16-bit waits.

•A Chipset menu lets you tune some of the differing chipsets for optimum performance. Here you can set DMA timing, Refresh timing, and AT-bus timing.

•The Security menu allows you to enable or disable password protection. If you forget the password, you will have to pull the CPROM chip to let it discharge completely, then reinsert it to reprogram your CMOS.

•The documentation that accompanies the chip is complete and contains excellent explanations for many of the POST and setup options. A fairly complete appendix contains the port addresses for the POST codes as well as a thorough description of the potential beep codes.

CAN A NEW BIOS MAKE A DIFFERENCE?

So, can changing a BIOS make any difference? For me, changing to Mr. BIOS fixed a video problem I was experiencing. The Renior Super VGA board I am using is extremely high-speed. However, even though I had a motherboard that said it was a zero wait state board, I could not use the Renior board in turbo mode because it could not match up with the motherboard's zero wait state. The Renior folks told me that the problem was that I really did not have a zero wait state board. The solution had been to slow down the bus speed by putting in one wait state into the Renior board to get things to work smoothly. After replacing the original BIOS in my 40MHz 386 with Mr. BIOS all those problems went away. I could run the motherboard at the high bus speed and the Renior board in turbo mode.

Microid has been the first to introduce many of these features, which are not standard in most other BIOS chip designs. I do love the little guy with the great innovation. If you have any BIOS-related problems on your computer, I recommend getting the latest version of Mr. BIOS. ■

Pen-Based EXPO

Los Angeles
September 21-23, 1992

Pen-Based EXPO

7 Conferences, 3 Spectacular Days!
1. Restructuring Business Processes Conference
2. Developing/Programming for Pen Conference
3. Systems Integration Conference
4. Windows for Pen Conference
5. Mobile Computing Conference
6. Hardware Technology Conference
7. Reseller Opportunities Conference

Learn from Pioneers in the Pen Field...
- Conference Chairman: Ed Yourdon, *American Programmer*
- Research Chairman: Portia Isaacson, Dream IT, Inc.
- George Barlow, Distributed Micro Systems
- John Butler, Microsoft Corporation
- Madeline Duva, CIC
- S. Jerrold Kaplan, GO Corp.
- D. Bruce Walter, GRiD Systems
- Plus Many More!

PLUS, a comprehensive Exposition spotlighting over 100 leaders in the Pen developer community including...

American Management Systems, Inc.
Byers Engineering Company
CalComp Digitizer Products Group
Communication Intelligence Corp. (CIC)
FTG Data Systems
Fujitsu Personal Systems, Inc. *
GRiD Systems Corp.
IBM Corporation *
Ink Development Corp.
Kurta Corp.
Logitech
MicroSlate, Inc.
Microsoft Corp. *
NCR Corporation *
NEC Technologies
Notable Technologies *
PEN PAL Associates *
PenMagic Software, Inc.
PenSoft Corporation *
PenWare, Inc. *
PI Systems
Scriptel Corporation
Slate Corporation *
Super Script
WACOM Technology

* Co-Sponsors

Call Julie Adler at (508) 470-3870
for exhibiting information.
A2YCMK

Featuring Live Product Demos

Try a Pen Computer Yourself!

DCI
Digital Consulting, Inc.

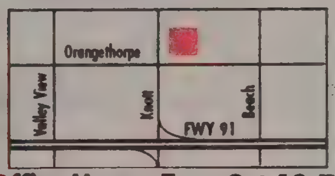
BYTE

Call (508) 470-3880
to register or receive a complete brochure.

NET Technology

Showroom Located At:
7035 Orangethorpe Ave., #G, Buena Park, CA 90621
Tel: (714) 523-2367 Fax: (714) 523-2625

FWY 91, exit Knott Ave. Go north & right on Orangethorpe Ave. At Zuma Business Park.



Office Hours: Tues-Sat 10-7
Sun 12-6 /Monday Closed

WE HONOR: VISA MasterCard

Very Affordable
386SX-25 System for the Price of 286.

- 80386SX-25 CPU, maximum 8MB on board
- 2MB RAM, 70ns
- TEAC 5.25″, 1.2MB high density FD
- TEAC 3.5″ 1.44MB high density FD
- 80MB Hard drive w/32K cache, 17ms access time
- 2 serial, 1 parallel, 1 game ports
- MGC 14″ color VGA monitor, with VGA display card, 640x480 resolution
- 101 enhanced space saver keyboard
- Mini tower or mini desktop, w/LED display

Price for the System

$945

386DX-33 Cache System,
Rates 54MHz Landmark

- 80386DX-33 CPU, maximum 32MB on board, expandable to 64MB RAM
- 64K cache 25ns
- 4MB RAM, ***fast 60ns memory***
- TEAC 5.25″, 1.2MB high density FD
- TEAC 3.5″ 1.44MB high density FD
- 120MB Hard drive w/64K cache, 15ms access time
- 2 serial, 1 parallel, 1 game ports
- 14″ SVGA color non-interlaced monitor, with 1MB SVGA display card, 1024x768 resolution, .28dp
- 101 enhanced space saver keyboard
- Mini tower or mini desktop, w/LED display

Price for the System

$1265

Upgrade to 386DX 40MHz for just $30 More!

High Performance
486DX-33 System

- 80486DX-33MHz Intel processor
- Full 256K cache on motherboard
- 4MB RAM, ***fast 60ns memory*** **expandable to 64MB maximum on motherboard**
- TEAC 5.25″ 1.2MB high density FD
- TEAC 3.5″ 1.44MB high density FD
- 120MB Hard drive with 64K cache, 15ms access time
- 2 serial, 1 parallel, 1 game ports
- 14″ color SVGA non-interlaced monitor, with 1MB SVGA display card, 1024x768 resolution, .28dp
- 101 enhanced space saver keyboard
- Mini tower or mini desktop with LED display

Price for the System

$1745

486DX-33 CAD Station
With 17″ Sony Monitor

- 80486DX-33MHz Intel processor
- Full 256K cache on motherboard
- **8MB RAM**, ***fast 60ns memory*** **expandable to 64MB maximum on motherboard**
- TEAC 5.25″ 1.2MB high density FD
- TEAC 3.5″ 1.44MB high density FD
- 120MB Hard drive with 64K cache, 15ms access time
- 2 Serial, 1 parallel, 1 game ports
- **17″ Sony 1604 multi scan monitor, .25 dot pitch, flat screen**
- *Diamond Speedstar* 24 hi-color 1 MB SVGA card, display 16 million colors, including Panacea AutoCad Accelerator, Turbo Window Drivers & other software
- 101 Enhanced space saver keyboard
- Mini tower or mini desktop with LED display

Price for the System

$2955

Diamond Stealth Card AVAILABLE!
CALL For Pricing

486DX-50MHz System
With NEC 4FG 15″ Monitor

- 80486DX-50MHz Intel processor true 50MHz, NOT a clock doubler!
- 256K Cache on motherboard
- 4MB RAM, ***fast 60ns memory***
- TEAC 5.25″ 1.2MB high density FD
- TEAC 3.5″ 1.44MB high density FD
- 210MB Hard drive w/64K cache, 15ms access
- 2 Serial, 1 parallel, 1 game ports
- **15″ NEC 4FG multisync monitor** w/Accu-color controls
- *Diamond Speedstar* 24 hi-color 1 MB SVGA card, display 16 million colors, including Panacea AutoCad
- 101 Enhanced space saver keyboard
- Special medium tower case with Dual Fan for extra cooling

Price for the System

$2995

Parts And Upgrades:

2400 Baud internal modem	$39
Fax 9600/modem 2400	$69
Z-Nix mouse 400DPI	$29
MicroSoft mouse	$69
Diamond Speedstar "24" hi-color	$179
Diamond Stealth	CALL
15″ NEC 4FG	CALL
17″ Sony 1604 *(IN STOCK)*	CALL

Special
w/Purchase Of Any System

DOS 5.0
WINDOW 3.1
Z-NIX MOUSE

ONLY $99

- All Systems Carry 1 Year Parts And Labor Warranty
- ***No Surcharge On Visa Or MasterCards***
- FREE Z-Nix Mouse For Cash Payment On System Purchase
- Custom Configuration Available
- Dealers Welcomed

FREE COMPUTER LESSONS W/ PURCHASE OF COMPUTER SYSTEM CALL FOR DETAILS!

Prices subject to change without notice.

THE MOST POWERFUL 486 WINDOWS & CAD PLATFORM.

EISA or LOCAL BUS

Introducing Our 32-Bit Local Bus.

Traditionally, 486 ISA machines could only support 16-bit video cards and run at standard 8MHz bus speed. That would be a bottleneck for ISA systems regardless of how fast the CPU could run. Now you have an alternative. Our Local Bus system uses a 32-Bit video card which not only provides double the data path, but also the video bus speed runs at true CPU speed. The result is video speed up to 5X faster than regular SVGA and up to 30X faster with our Local Bus S3 VRAM Graphics Accelerator. Another advantage to our Local Bus is the available 32-Bit IDE hard drive controller which can improve the Data Transfer Rate of the hard drive by up to 100% faster.

The Ultimate Machine -- EISA 486

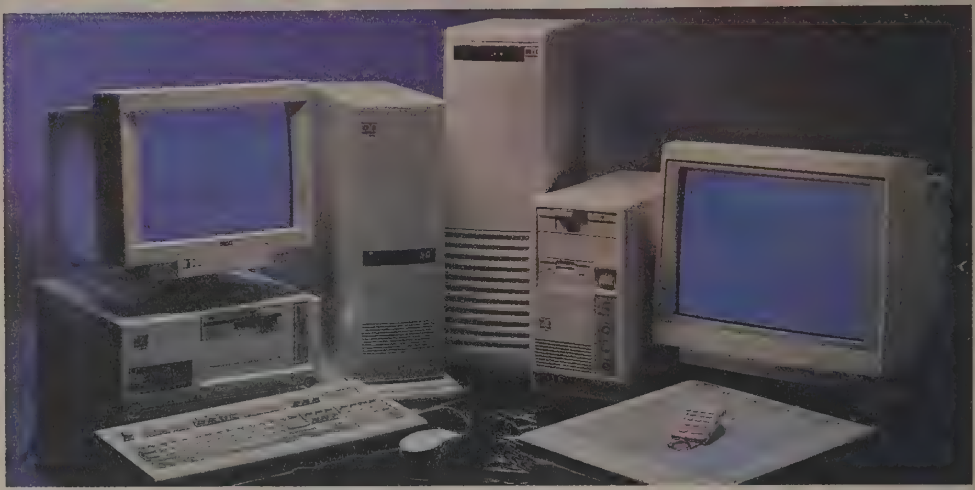
Achieve ultimate 486 power at an affordable price. Now it is all possible. At COMTRADE, we are offering 32-Bit 486 EISA systems with TRUE 32-Bit EISA hard disk controller, realizing the fastest hard drive performance available today. And with an optional Diamond Stealth / Orchid Fahrenheit 1280° S3 VRAM Graphics Accelerator, we've just made our competitor's ISA system look like a snail. So why pay top dollar for regular ISA system offered by companies like AST, COMPAQ or DELL when you can get the best for less at COMTRADE, with the now affordable 486 EISA system.

• *Additional 3% Cash Discount* •

We Stand Behind Our Product.

- ONE YEAR WARRANTY ON PARTS
- LIFETIME WARRANTY ON LABOR
- 72 HOURS BURN-IN TIME BEFORE SHIPPING
- LIFETIME TOLL-FREE SERVICE & SUPPORT
- 6 YEARS EXPERIENCE IS YOUR ASSURANCE

All systems are FCC approved • Price Subjects to Change
Hours: Monday-Friday 8:00-6:00; Saturday 10:00-6:00.



Local Bus SVGA

- 64K High Speed Cache SRAM
- 4 MB RAM & Built-in 487
- 1.2 MB & 1.44 MB Floppy Drive
- 130 MB 15ms IDE 64K Cache Drive
- **32-Bit Local Bus SVGA Card w. 1MB** (Up to 5X faster than regular SVGA) (Upto 1280x1024 & 32K Colors)
- 14" Non-interlaced 1024 SVGA Monitor (VESA Standard for 72Hz Flicker-Free)
- 2 Serial, 1 Parallel & 1 Game Ports
- Enhanced 101-key Keyboard
- Hi-Resolution 400DPI Serial Mouse
- Free MS-DOS 5.0 & Windows 3.1

486/33 DX	$1795
486/50 DX2	$1995

- 32-Bit Hard Disk Controller Add $100

Local Bus WinStation

- 64K High Speed Cache SRAM
- 4 MB RAM & Built-in 487
- 1.2 MB & 1.44 MB Floppy Drive
- 130 MB 15ms IDE 64K Cache Drive
- **32-Bit Local Bus S3 Accelerator w. 1MB** (Up to 50X faster than regular SVGA) (Upto 1280x1024 & 32K Colors)
- 14" Non-interlaced 1024 SVGA Monitor (VESA Standard for 72Hz Flicker-Free)
- 2 Serial, 1 Parallel & 1 Game Ports
- Enhanced 101-key Keyboard
- Hi-Resolution 400DPI Serial Mouse
- Free MS-DOS 5.0 & Windows 3.1

486/33 DX	$1945
486/50 DX2	$2145

- 32-Bit Hard Disk Controller Add $100

EISA WorkStation

- 64K High Speed Cache SRAM
- 4 MB RAM & Built-in 487
- 1.2 MB & 1.44 MB Floppy Drive
- 130 MB 15ms IDE 64K Cache Drive
- **32-Bit EISA Hard Disk Controller**
- 14" Non-interlaced 1024 SVGA Monitor (VESA Standard for 72Hz Flicker-Free)
- 2 Serial, 1 Parallel & 1 Game Ports
- Enhanced 101-key Keyboard
- Hi-Resolution 400DPI Serial Mouse
- Free MS-DOS 5.0 & Windows 3.1

486/33 DX	$2145
486/50 DX2	$2345

- 8MB RAM & 210MB Drive Add $380

Economical 486 SX

- 50% Faster than any 386/40 System
- 1 MB RAM; Expandable to 32 MB
- 1.2 MB & 1.44 MB Floppy Drive
- 85 MB SCSI Hard Drive
- 16-Bit Super VGA with 512K
- 14" VGA Color Monitor
- 2 Serial, 1 Parallel & 1 Game Ports
- Enhanced 101-key Keyboard
- Mini-tower Case with 5 Drive Bay
- Hi-Resolution 400DPI Serial Mouse

386/25 SX	$995
486/25 SX	$1195

- 4MB RAM & 130MB Drive Add $200

MAXIMUS ■ COMTRADE

15314 E. Valley • Industry, CA 91746
Fax: 818-369-1479 • FWY 60 Exit Hacienda

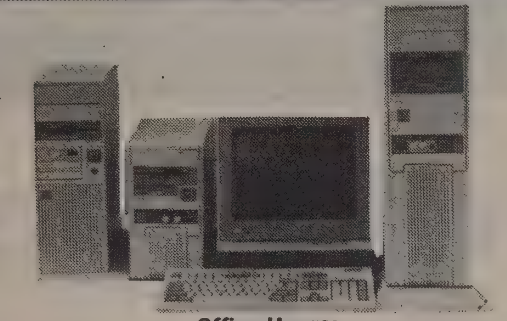
117 N. Lake Ave • Pasadena, CA 91101
Fax: 818-585-0839 • FWY 210 Exit Lake Ave

City of Industry : (818) 961-6688
Pasadena : (818) 585-0888

80286-12/16/25 MHz Sys

- 1 MB RAM
- 1.2 or 1.44 Floppy Dr.
- 200 W. Power Supply
- 16 Bit Dual (1:1) HD/FD Controller
- AT I/O Card
- 101 Enhanced Keyboard
- Mini Vertical Case
- VGA Monitor & VGA Card
- 40 MB Hard Drive

$635
$665
$695



Office Hours:
Monday Thru Friday
9:00 AM - 6:00 PM

486-33 MHz Cache Sys

- Intel 486 CPU with 64K Cache
- 4 MB RAM
- 1.2 or 1.44 Floppy Dr.
- 16 Bit Dual (1:1) HD/FD Controller
- AT I/O Card
- 101 Enhanced Keyboard
- AT Vertical Case with 230W P.S.
- SVGA Monitor & SVGA 1 MB Card
- 120 MB Hard Drive
- LandMark Rating 153 MHz

$1499

80386SX-16/25/33 MHz Sys

- 2 MB RAM
- 1.2 or 1.44 Floppy Dr.
- 200 W. Power Supply
- 16 Bit Dual (1:1) HD/FD Controller
- AT I/O Card
- 101 Enhanced Keyboard
- Mini Vertical Case
- VGA Monitor & VGA Card
- 100 MB Hard Drive

$799
$825
$885

80386-25/33/40 MHz Sys

- 4 MB RAM w/64K Cache
- 1.2 or 1.44 Floppy Dr.
- 200 W. Power Supply
- 16 Bit Dual (1:1) HD/FD Controller
- AT I/O Card
- 101 Enhanced Keyboard
- Mini Tower Case
- SVGA Monitor & SVGA 512K
- 120 MB Hard Drive

$999
$1060
$1090

486-50 MHz Cache Sys

- Intel 486 CPU with 64K Cache
- 4 MB RAM
- 1.2 or 1.44 Floppy Dr.
- 16 Bit Dual (1:1) HD/FD Controller
- AT I/O Card
- 101 Enhanced Keyboard
- AT Vertical Case with 230W P.S.
- SVGA Monitor & SVGA 1 MB Card
- 200 MB Hard Drive
- LandMark Rating 200 MHz

$1899

80386-25/33/40 MHz Sys

- 4 MB RAM
- 1.2 or 1.44 Floppy Dr.
- 200 W. Power Supply
- 16 Bit Dual (1:1) HD/FD Controller
- AT I/O Card
- 101 Enhanced Keyboard
- Mini Tower Case
- SVGA Monitor & SVGA 512K
- 85 MB Hard Drive

$945
$965
$985

Local Bus 486-33 System

- 486 33 MHz Local Bus M/B with 256K Cache
- 4 MB RAM
- 1.2 or 1.44 Floppy Dr.
- 16 Bit Dual (1:1) HD/FD Controller
- AT I/O Card
- 101 Enhanced Keyboard
- Vertical Case & Power Supply
- 32 Bit SVGA Card with 1 MB RAM
- 120 MB Hard Drive

$1590

486sx-25 MHz System

- Intel 486 CPU w/Cache
- 4 MB RAM
- 1.2 or 1.44 Floppy Dr.
- 16 Bit Dual (1:1) HD/FD Controller
- AT I/O Card
- 101 Enhanced Keyboard
- AT Vertical Case with 230W P.S.
- SVGA Monitor & SVGA 512K Card
- 100 MB Hard Drive

$1069

MOTHERBOARD

486 DXZ-50 MHz M.B. w/256K Cache	$720
486-33/50 MHz M.B. w/256K Cache (Local Bus & 32 Bit VGA Card	$680/950
486-33 MHz M.B. w/64K, 256K Cache	$525/555
486-33 MHz Motherboard w/o Cache	$485
486SX-25 MHz w/64K Cache M.B.	$245
386-40 MHz Motherboard w/o Cache	$185
386-33 MHz Motherboard w/o Cache	$170
386-40 MHz Motherboard w/64K Cache	$210
386-33 MHz Motherboard w/64K Cache	$199
386-25 MHz Motherboard w/o Cache	$185
386SX-33 MHz Motherboard	$149
386SX-25 MHz Motherboard	$129
386SX-16 MHz Motherboard	$110
286-16/25 MHz Motherboard	$69/79
286-12 MHz Motherboard	$59

ADD ON CARD

Monographic Printer Port	$12
VGA 16 Bit Card with 256K (800x600)	$29
SVGA Card with 512K (1024x768)	$59
SVGA Card with 1 MB (1024x768x256 Color)	$79
Orchid Farenheit 1280 1 MB VGA Card	$245
Speedstar STEALTH VRAM VGA Card	$299
AT I/O Card (2S. 1P. 1G.)	$12
360 1.2 1.44 720 Floppy Controller	$19
IDE HD & FD Controller	$14
IDE HD & FD & I/O Controller	$19
IDE 4 Floppy Drive & Hard Drive Controller	$25
ESDI HD & FD Controller	$135
SCSI HD & FD Controller	$110
MFM/RLL HD & FD Controller	$45/65

HARD DRIVE

Maxtor/Conner/Western Digital 40 MB HD	$185
Maxtor/Conner/W.D./Quantum 80 MB HD	$255
Maxtor/Conner/W.D./Quantum 125 MB HD	$325
Maxtor/Conner/W.D./Quantum 210 MB HD	$495

CASE

Mini Tower Cases with Power Supply	$59
Mid Size Tower Case with Power Supply	$85
Full Size Tower Case with Power Supply	$115

MONITOR KIT SET

VGA Monitor (640x480) VGA 16 Bit Card with 256K	$240
Super VGA Monitor (1024x768 .28dp) Super VGA Card with 512K	$285
Super VGA Monitor (1024x768 .28dp) Super VGA Card with 1 MB	$310
MultiScan Monitor (1024x768 .28dp) Super VGA Card with 1 MB	$350
VESA Monitor (1024x768 75 MHz) Super VGA Card with 1 MB	$459
17″ IDEK MultiScan Monitor (1028x1024 Res.) Speedstar STEALTH VRAM Card	$1390

MONITOR

14″ VGA (640x480)	$215
14″ Super VGA Monitor (1024x768)	$255
14″ MultiScan Monitor (Non-Interlace)	$295
14″ PURETEK VESA Monitor (75 MHz)	$355
17″ IDEK MultiScan Monitor	$1080

KEYBOARD

101 Enhanced Non Click Keyboard	$23
101 Enhanced Click Keyboard	$26
101 Enhanced Super Click Keyboard	$29
FOCUS 8000 Keyboard	$49
FOCUS 5001 Keyboard	$62
FOCUS 9000 Keyboard	$72

FLOPPY DRIVE

Mitsumi 1.2 Floppy Drive	$52
Mitsumi 1.44 Floppy Drive	$49
TEAC 1.2 Floppy Drive	$52
TEAC 1.44 Floppy Drive	$54

NETWORK CARD

Ethernet 8/16 Bit Card	$99/125
ARCNet 8/16 Bit Card	$85/109

MOUSE

MOUSE Hi-Res	$18
MOUSE CP-3	$12
TRUEDOX TRACKBALL	$25

FAX & MODEM

Internal 2400B Modem	$45
Internal 9600 Fax 2400B Modem	$85
Smart One Fax 9600 2400B Modem	$75

TAPE BACKUP

Colorado Tape Backup DJ-10 120 MB	$195
Colorado Tape Backup DJ-20 200 MB	$249
SONY CD-ROM With Controller & Bundle Software	$499

BASIC SYSTEM

Basic Sys. 286-12 MHz			$115
Basic Sys. 286-16 MHz			$125
Basic Sys. 286-25 MHz			$145
Basic Sys. 386SX-16 MHz			$160
Basic Sys. 386SX-25 MHz			$189
Basic Sys. 386SX-33 MHz			$209
Basic Sys. 386-25 MHz			$260
Basic Sys. 386-33 MHz	$220	with 64K	$275
Basic Sys. 386-40 MHz	$230	with 64K	$285
Basic Sys. 486SX-25 MHz w/64K			$255
Basic Sys. 486-33 MHz w/64K	$609	with 256K	$639
Basic Sys. 486-33 MHz w/o Cache			$547
Basic Sys. 486-50 MHz w/256K			$955

(All Basic Sys. Include M/B, Mini Case, P/S)

TERMS & CONDITIONS

- 1 Year Warranty (Parts & Labor)
- Prices Are Subject To Change Without Notice
- Defective Merchandise Must Have RMA Authorization
- 15% Restocking Charge
- Terms COD or Prepaid (Cashier Ck, Company Ck, OAC)
- All Systems 14 Day Money Back Guarantee
- Quantity Discount Available
- All Systems Novell Compatible

Computix

COMPUTER UPGRADE

3480 W. Warner #E • Santa Ana, CA 92704
Tel (714) 540-5131
Fax (714) 540-5139

TSC U.S. Turbo System

1819 N. Floradale Ave.
So. El Monte, CA 91733
Tel (818) 579-2405
Tech. Support (818) 579-1446
FAX (818) 579-9572

ASEAN COMPUTER TECHNOLOGIES
INCORPORATED

• 971 FAIRWAY DRIVE • WALNUT, CALIFORNIA 91789 •

For Phone Orders
(714) 598-2828
or Order By Fax
(714) 598-5748
TECH SUPPORT: (714) 598-5498

ASEAN 286 & 386SX VGA SYSTEMS

- ☐ 2MB RAM
- ☐ 1.2MB FLOPPY DRIVE
- ☐ 1.44MB FLOPPY DRIVE
- ☐ 2 SERIAL/PARALLEL/GAME
- ☐ 101 ENHANCE KEYBOARD
- ☐ 16BIT VGA CARD
- ☐ 14" VGA MONITOR
- ☐ IDE 1:1 CONTROLLER
- ☐ MINI TOWER w/P.S.

286-20	CALL
386SX-16	CALL
386SX-25	CALL

FREE HI-RES MOUSE
100% MICROSOFT COMPATIBLE
CALL FOR DIFFERENT HARD DRIVE CONFIGURATIONS

ASEAN 286 WORKHORSE, 386SX, 386DX & 486 HIGH PERFORMANCE SYSTEMS ARE PRE-TESTED A MINIMUM OF 48HRS TO ENSURE MAXIMUM QUALITY & RELIABILITY

ONE YEAR PARTS AND LABOR WARRANTY ON ALL SYSTEMS

ASEAN 386 DX SVGA SYSTEMS

- ☐ 4MB RAM
- ☐ 1.2MB FLOPPY DRIVE
- ☐ 1.44MB FLOPPY DRIVE
- ☐ 2 SERIAL/PARALLEL/GAME
- ☐ 101 ENHANCE KEYBOARD
- ☐ 16BIT VGA CARD (1024x768)
- ☐ 14" SVGA MONITOR
- ☐ (1024x768 .28mm)
- ☐ IDE 1:1 CONTROLLER
- ☐ MINI TOWER w/P.S.

386-25MHz	CALL
386-33MHz w/64K	CALL
386-40MHz w/64K	CALL

ASEAN 486DX-33MHz SYSTEM

CUSTOM CONFIGURATIONS AVAILABLE!!!

4MB RAM • 256K CACHE • 101 ENHANCE KB
TEAC 1.2MB & 1.44MB FLOPPY DRIVES
AT I/O CARD (2S/1P/1G) • IDE 1:1 H/F CTRL
1MB SVGA CARD • MINI OR DESKTOP CASE
**** 130MB IDE HARD DRIVE • MS DOS 5.0

w/14" EDISON / ARCUS .28mm I (1024x768)	$1520
w/14" CTX 5468 / ARCUS .28mm NI (1024768)	$1570
w/14" VIEWSONIC 6 .28mm NI (1024x768) 72Hz	$1600
w/14" VIEWSONIC 5+ .25mm NI (1024x768)	$1750
w/14" SONY 1304 .25mm NI (1024x768)	$1850
w/15" NEC 4FG .28mm NI (1024x768)	$2050
w/17" VIEWSONIC 7 .28mm NI (1280x10.24)	$2300
w/17" SONY 1604 .25mm NI (1024x768)	$2350

FREE MS WINDOWS 3.1 w/Hi-res serial mouse

SYSTEM UPGRADE SPECIALS:

ADDITIONAL 4MB	add $120
170MB IDE HARD DRIVE	add $ 50
210MB IDE HARD DRIVE	add $180
330MB IDE HARD DRIVE (LIMITED SUPPLY)	add $450
ORCHID PRODESIGNER II5	add $100
ORCHID FARENHEIT (1280x1024)	add $180
DIAMOND STEALTH (S3)	add $190
*** IDE CACHE CTRL w/1MB	add $235

0.4ms Average Access Time • 5MB/Sec Max Data Transfer Rate • Max 4 IDE Drive Support 1:1 Interleave • 16MB Cache Expandable

ASEAN 486-50MHz......add $ 200

256K Cache Memory on Board Expandable up to 32MB (SIMM) • Hidden Refresh selectable for higher performance Supports Shadow Ram • Write back cache design , 2nd level cache on board

ASEAN 486-33MHz LOCAL BUS

w/32bit Video Card.....add $ CALL

256K Cache Memory on Board Expandable up to 32MB (SIMM) • Shadow Ram support • 2nd level write back direct mapped cache • 7 DMA channels & 15 interrupt levels.

CASES W/P.S.

Baby Desktop +200W	$58
Desktop w digital +200W Black	$70/80
Mini Tower +200W (LIMITED)	$56
Mini Tow w dig. +200W Black	$60/75
Med Tower w dig. +220W	$80
Full Tower w dig. +250W Black	$105/130

VIDEO DISPLAY CARDS

ACTi 16bit w/256K 800x600	$35
Paradise OEM w 1MB 1024x768	$78
Paradise OEM w 1MB w Sierra Chip	$99
Trident 9000 w 512K 1024x768	$45
Trident 8900C w 1MB 1024x768	$60
Trident 8900C w 1MB w Sierra Chip	$85
Orchid Pro IIs w 1MB 1024x768 w Sierra RAMDAC 32.768 colors chip	$185
Orchid Fahrenheit w 1MB 1280x1024 w Sierra RAMDAC 32.768 colors chip	$255
Diamond SpeedStar w 1MB w Hi Color chip	$195
Diamond Stealth Windows Accelerator w 1MB w Hi-Color chip	$255
ATI Graphics Vantage w 1MB & Mouse (11 times faster than SuperVGA Cards OEM)	$295
ATI Graphics Ultra w 1MB & Mouse (24 times faster than SuperVGA Cards OEM)	$455
Mono Graphic w Printer port	$15

MISCELLANEOUS

Windows 3.1	$40
Colorado Tape Back-up 120MB	$185
Colorado Tape Back-up 250MB	$245
External Drive Kit (no adapter)	$80
AB-11 Tape Adaptor (for ext.)	$40
Minicartridge 120/250MB	$20/22
2400 int/ext w MNP	$38/52
9600 v.32 int/ext w MNP	$265/315
9600/2400 Fax Modem w/MNP7	$56

Call for MATH-CO PROCESSORS

MOTHERBOARDS

286-12Mhz (4 M exp.)	$55
286-16Mhz 286-20Mhz (4M exp.)	$75/80
386-SX16/SX25	$120/140
386-DX25 w/o CPU	$88
386-33 64K cache w/o CPU	$130
386-40 64K cache w/oCPU	$135
486-33 64K cache w/o CPU	$150
486-33 256K cache w/o CPU	$185
486-50 64K cache w/o CPU	$170
486-50 256K cache w/o CPU	$205
EISA 486-33 64K cache w/o CPU	call
EISA 486-33 256K cache w/o CPU	call
486 -33 Local Bus 256K cache w/o CPU + Tseng Lab ET4000 S3 32 Bit SVGA card	call

CALL FOR CPU $$

I/O CARDS

AT I/O (2S/P/G)	$13
Printer card/Game card	$9/9
RS 232 Serial card	$12

H/F CONTROLLERS

LCS 2.88MB Floppy Ctrl (4FD)	$75
LCS IDE Ctrl + I/O w 2.88MB FD support	$105
LCS IDE 1:1 Ctrl w/2.88MB FD support	$85
IDE 1:1 2H 2F Ctrl	$15
Super IDE 2H 2F Ctrl w AT I/O	$22
IDE 1:1 2H 4F Ctrl 1:40	$35
IDE 1:1 2H 2F Ctrl w ROM (for Networks)	$45
IDE DC600 Ctrl w cache +1MB (Networks CAD) 4H 2F	$275
MFM AT 1:1 H/F Ctrl RLL AT 1:1	$40/60
MFM XT HD Ctrl RLL XT	$40/50
Adaptec 1542B SCSI	$250
Adaptec 1542B SCSI w/kit	$280
Adaptec 32bit SCSI 1740BK	$580
DTC 3280A SCSI DOS/Novell	$135/230
Future Domain SCSI DOS/DNK	$205/290

KEYBOARDS

BTC 101 Enhance	$28
Lite-On 101	$35
Keytronic 101 KT2000	$45
Fujitsu 4700 101	$45
Focus 2000+ w/Dust Cover +Diag. Arrow Keys	$39
Focus 2001 w/Dust Cover	$38
Focus 5001 w/Calculator +Double Function Keys	$55
F8000 111 Keys w Calculator (soft)	$48

MONITORS
Authorized Viewsonic Dealer

14" VGA Monitor MQ (640x480)	$210
14" VGA Monitor Packard Bell (640x480)	$230
14"CTX5468/Arcus SVGA	$260
(.28mm 1024x768) Black Arcus	$290
14" CTX5468 N/Arcus 1448 SVGA Multisync Non-Interlace (.28mm 1024x768)	$300
Black Arcus NI (.28) 1024x768	$350
14" Edison 1428 SVGA (.28mm 1024x768)	$245
14" Edison 1439 SVGA (.39mm 1024x768)	$215
14" Princeton Ultra 1400 SVGA Multiscan (.28mm 1024x768)	$370
14" Viewsonic 4E Multiscan (.28mm 1024x768)	$310
14" Viewsonic 5E Non-Interlace (.28mm 1024x768) 72Hz Refresh	$390
14" Viewsonic 5+ Non Interlace (.25mm 1024x768) Trinitron Tube	$490
14" Viewsonic 6 Non Interlace (.28mm 1024x768)	$325
17" Viewsonic 7 Top Rated (.28 1280x1024)	call
14" Sony 1304 Non Interlace (.25mm 1024x768) Trinitron Tube	$565
17" Sony 1604 Non Interlace (.25mm 1024x768) Trinitron Tube	call
15" NEC 4FG/17" NEC 5FG (.28 mm multiple frequency)	$755/1460
20" Viewsonic 8 (.31mm 1280x1024) oversize	$1600

HARD DISKS/FLOPPY DRIVES

CONNER 3000 40MB IDE (28ms)	call
CONNER 30084 80MB IDE (19ms)	$250
CONNER 30104 120MB IDE (19ms)	$300
CONNER 30174 170MB IDE (17ms)	$355
CONNER 3204 210MB IDE (16ms)	$500
CONNER 3364 360MB IDE (12ms)	$760
CONNER 3540 SCSI 540MB (12ms)	$1150
FUJI FK317A-210R IDE 210MB (13ms)	call
FUJITSU 425MB IDE (12ms)	call
FUJITSU 520MB IDE (12ms)	call
MAXTOR 7080A 80MB IDE (17ms)	$250
MAXTOR 7120A 120MB IDE (17ms)	$290
MAXTOR 7120S 120MB SCSI (15ms)	$380
MAXTOR 213A 210MB IDE (15ms)	$485
MAXTOR 213S 213MB SCSI (15ms)	$590
MAXTOR 4380S 337MB SCSI (16ms)	$1000
MAXTOR 340A 340MB IDE (16ms)	$780
MAXTOR 534A 535MB IDE (16.5ms)	call
QUANTUM Q52AT 52MB IDE (17ms)	$220
QUANTUM Q84AT 84MB IDE (17ms)	$260
QUANTUM Q105AT 105MB IDE (17ms)	$280
QUANTUM Q12A012 120MB IDE (16ms)	$305
QUANTUM Q24A012 240MB IDE (16ms)	call
WESTERN DIG 280 80MB IDE (18ms)	$260
WESTERN DIG 2120 125MB IDE (16ms)	$340
WESTERN DIG 2200 210MB IDE (15ms)	$535
SEAGATE 351A 42MB IDE (28ms)	$180
SEAGATE 3096A 89MB IDE (15ms)	call
SEAGATE 3120A 106MB IDE (17ms)	$270
SEAGATE 3144A 127MB IDE (15ms)	$310
SEAGATE 1239A 200MB IDE (15ms)	call
SEAGATE 3243A 240MB IDE (13ms)	$575
TEAC 3105 105MB IDE (17ms)	$270
Mitsumi 1.2/1.44MB	$50/47
Teac 1.2/1.44/2.88MB	$55/52/105
1.44 with kit add	$3.00

MICE & TRACKBALLS

Truemouse Hi-res (Serial)/CP3	$15
Truemouse TX/AX 300 (Serial) Black	$20/30
Truemouse HWT500 Wireless	$69
Truedox Trackball	$35
Logitech MouseMan (Serial)	$65
Logitech MouseMan (Bus)	$75
Logitech TrackMan (Serial)	$78
Logitech TrackMan (Bus)	$88

Minimum order $300 or Qty 10+. Call for Dealer Qty Discounts and other products (Printers, RAM, P.S.)

TERMS:1year warranty on parts & labor. Printers & monitors warranty thru manufacturer. All sales on CHIPS,MONITORS & PRINTERS are final. NO REFUND! All returns are subjected to our approval & must have prior authorization. Return items must be in good condition & in its original packing shipped prepaid & insured. All refunds or credits are less freight & bank charges. All refund items must be returned within 14 days of invoice. There will be a restocking charge of 20% after the 7 days period & within 30 days of invoice. Not responsible for any typographical errors. Price & availability subject to change without any notice. Prices are COD cash/cashiers chk.

The MultiMedia Source

Creative Labs MultiMedia Upgrade Kit
Everything you Need for MultiMedia $ 579

Pro Audio Spectrum 16
Low cost 16 Audio card $ 299

New MIDILAND OKEY DOKEY
SoundBlaster/Adlib Compatible w/Midi $ 109

Creative Labs SoundBlaster Pro
The Sound Card Standard $ 229

New NEC CDR84 CD ROM
Fastest PC Internal CD Rom Player $ 579

New ROLAND SCC1
Real 16 bit Music Instruments w/Midi $ 419

turtle beach systems

56K
Personal Digital Audio Workstation

MultiSound -PC
2 Track Digital Audio & EMU Proteus1XR Synth For Under $1000

CardD System
Low Cost 16 BIT Pro PC HD Recording & DAT Editing

Over 100 Midi Books from $5

EZ Financing by BenCharge and Roland. Call for Details!

We Feature Allen & Heath, Digidesign, Kawai, Peavey, Roland Products & More! Over 400 different Midi Programs!

- Cakewalk Windows Sale
- 260 Drum Patterns $24
- Sound Canvas In Stock
- Mac Classic 2/40 $969!
- PG Band in the Box $69
- Midi Interfaces From $50
- PC Midi Starter Kit $99
- Miracle Piano $379
- Roland U20 Keyboard $999
- Thousands Of Sounds From $5

Peavey SP/SX
$1350
16 bit sampling - 16 voice - 4 outputs up to 32megs of ram & Complete Libraries from Peavey & EMB!

Finale Users Group July 22
Computer Swapmeet in Pomona July 18

Sign Up Now for Our Sequencer & Notation Courses!!

Monday Night Midi Seminars
The Free EASY Introduction to Midi.
Private Tutoring in your home or studio by the experts

Free Phone Support on Products Purchased From Us! Rent Computer Time $8/hr.

The Electronic Music Box

LA's Midi-Music-Digital Audio Experts

-Music/Midi BBS (818) 789-4287

14947 Ventura Blvd. Sherman Oaks (818) 789-4250

continued from page 78

card can accommodate an 80287 math coprocessor, which makes the Bridgecard fairly suitable for CAD work. The vast majority of DOS applications, such as WordPerfect, Microsoft Quick Basic, Quick C, and Word, and spreadsheets such as Lotus 1-2-3, do run acceptably on such a system.

Is the Bridgecard stable? Well, we're running DOS 5.0 plus a wide selection of DOS applications, and have had absolutely no problems.

Don't try running Windows, though. Slow as molasses!

PC/AMIGA EXPANDABILITY

Although Commodore provides a utility with the Bridgecard which allows it to access a DOS partition on an Amiga hard drive, the process is laborious and results in what's probably the slowest PC hard drive you'll ever see!

The obvious solution is to provide a hard disk subsystem on the PC backplane. Unfortunately, with only three slots available after Bridgecard installation, and no drive bays *at all* available in the Amiga 2000 case, we were confronted by the problem of finding a place to mount the physical hard drive.

The solution to this problem, which I can recommend to any Amiga 2000 user, is the Plus Development Hardcard 105. The Hardcard is a hard disk controller with a complete 1"-high hard disk mechanism built onto the card. The drive itself is of excellent quality, manufactured by Quantum. Installed and formatted, the Hardcard works flawlessly in a Bridgecard-based system, and provides over 100 MB of storage. The Plus Hardcard lists for $595 (and sells on the street for perhaps $450), and is the perfect Bridgecard solution. It also comes in a 50MB version for around $300. It is a superb and reliable product.

Most standard VGA cards will work with the Bridgecard, and I recommend their use, because the CGA and monochrome video provided by the Bridgecard on the Amiga monitor is slow and barely functional. Our standard modus operandi is to use a video switcher to change back and forth between the PC video and Amiga video, and to send the video signals to a Multisync VGA monitor. (It must be mentioned that Amiga video must be modified to make use of a multisync, unless you own an Amiga 3000. This requires de-interlacing circuitry, which is readily available for under $300.)

The PC Bridgecard affects memory addressability on the Amiga side, limiting you to 7MB total RAM. In the Wright Engineering system, this means that 2MB of installed Amiga memory cannot be used.

CONCLUSIONS

One thing we discovered: there are areas in which neither Mac nor PC platforms are state-of-the-art. With the PC, it's processor technology; with the Mac, it's system architecture.

Nonetheless, I consider this system, which has three platforms in a single case and no significant problems, to be a technical marvel. No other PC or Mac system has ever achieved this. Creating this platform was not a cheap undertaking, and it is certainly not for everyone. The Wright Engineering Amiga 2000 platform also winds up being a very crowded machine!

However, such a system does exhibit remarkable possibilities. It also points out the technical excellence of this machine.■

A+ COMPUTER SYSTEMS
IN CERRITOS AREA
"MADE IN U.S.A." AVAILABLE

ALL SYSTEMS INCLUDE:
- Mini Tower
- 1.2MB Floppy
- 1.44MB Floppy
- 101 Enhanced Keyboard
- 2 Serial/1 Parallel/1 Game Card
- Hi-Resolution Mouse
- 48-Hour Burn-In
- 1 Year Parts & Labor Warranty

486/33 LOCAL
32 Bit Local Bus/32 Bit SVGA
- 256K Cache
- 4MB RAM
- 120MB HD
- 32-Bit ET 4000 SVGA 1MB
- SVGA Monitor 14" 1024x768, .28dp

$1595*

486/33
- 64K Cache
- 4MB RAM
- 120MB Hard Drive
- SVGA 1MB Video Card
- SVGA Monitor, 14", 1024x768, .28dp

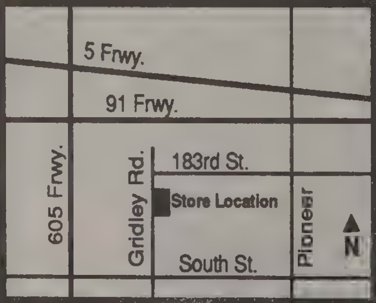
$1475*

386/40
- 64K Cache
- 4MB RAM
- 120MB Hard Drive
- SVGA 1MB Video Card
- SVGA Monitor, 14", 1024x768, .28dp

486 Upgradeable Motherboard...add$49

$1199*

COMPONENTS ARE SOLD SEPARATELY
AT GUARANTEED LOWEST PRICE!
Special prices on S3/ET4000



WE DO:
- CUSTOMIZE
- UPGRADE
- NOVELL NETWORK

A+ COMPUTER SYSTEMS
18300 Gridley Rd., Suite B
Artesia, CA 90701

TEL: (310) 403-3727 FAX: (310) 403-3731

Business Hours:
M-F 9am to 7pm
Sat 10am to 6pm

DON'T MISS OUT ON YOUR COPY OF

MICROTIMES™

Available All Month Long At

THE ESSENCE GROUP
17815 Newhope Street, Ste. G, Fountain Valley, CA 92708
(714) 546-3110

FLEXCOM, INC.
2634 S. Harbor, Santa Ana, CA 92704
(714) 641-9674

WESTERN MICRO
22343 La Palma Ave., Ste. 120, Yorba Linda, CA 92687
(714) 692-1774

PMC COMPUTER SYSTEMS
15375 Barranca Parkway, Ste. G 101, Irvine, CA 92718
(714) 727-7086

A.J. COMPUTER SUPPLIERS
5122 Bolsa Ave., Ste. 107, Huntington Beach, CA 92649
(714) 895-5802

486/33 EISA

- 4MB RAM
- 256K Cache Memory
- 1.2MB & 1.44MB Floppy Drives
- 210MB (13ms) Hard Disk
- 32-bit EISA IDE Controller w/1MB Cache RAM
- 16-bit VGA Card w/ 1MB Video RAM
- 14" Super VGA Color Monitor (1024 x 768 res.)
- 2 Serial, 1 Parallel Ports
- Enhanced 101 Keyboard
- High Resolution Mouse
- 250 Watt UL Power Supply
- Full Size Tower Case w/ 6 openings

$2495

486/50 EISA

- Same configuration as 486/33 EISA.

$2795

486/33

- 4MB RAM
- 64K Cache Memory
- 1.2MB & 1.44MB Floppy Drives
- 175MB (15ms) Hard Drive
- 16-bit VGA Card with 1MB Video RAM
- 14" Super VGA Color Monitor (1024 x 768 res.)
- 2 Serial, 1 Parallel Ports
- Enhanced 101 Keyboard
- High Resolution Mouse
- 220 Watt UL Power Supply
- Full Size Desktop/Tower Case with 6 openings

$1645

486/50 DX2

- Same configuration as 486/33.

$1825

386/33

- 4MB RAM
- 64K Memory Cache
- 1.2MB & 1.44MB Floppy Drives
- 130MB (15ms) Hard Drive
- 16-bit VGA Card with 1MB Video Ram
- 14" Super VGA Color Monitor (1024 x 768 res.)
- 2 Serial, 1 Parallel Ports
- Enhanced 101 Keyboard
- 200 Watt UL Power Supply
- Mini Desktop/Tower Case with 5 openings
- High Resolution Mouse

$1195

386/40

- Same configuration as 386/33.

$1235

New Technologies
WE'RE NOT #1
YET!

Don't let New Technologies' low prices fool you, it's what you get in addition to the superb hardware that really makes them your best buy and the reason we're going to be Number 1. At New Technologies we know service starts before you purchase your new system and lasts as long as you own it. From our 286 work station to our 486 EISA state-of-the-art system, all New Technologies computers are not only manufactured exclusively from the highest quality components, but by a company committed to your complete satisfaction. We are a company dedicated to offering you more.

- *No surcharge for Visa or Mastercard*
- *Free Lifetime technical support*
- *Customized systems*
- *30 Day Satisfaction Guarantee*
- *One Year Parts and Labor Warranty*
- *Free Bulletin Board Technical Support*
- *All Systems are pretested with a 48 hour burn-in*
- *Government & Corporate POs accepted*

486SX/20

- ***Faster than a 40MHz 386***
- 4MB RAM
- 1.2MB & 1.44MB Floppy Drives
- 130MB (15ms) Hard Disk
- 16 Bit VGA Card w/1MB RAM
- 14" Super VGA Monitor
- 2 Serial, 1 Parallel
- Enhanced 101 Keyboard
- 200 Watt UL Approved Power Supply
- Mini Desktop/Med. Tower Case
- High Resolution Mouse

$1345

386/25

- 2MB RAM
- 1.2MB & 1.44MB Floppy Drives
- 80 MB (15ms) Hard Drive
- 16-bit VGA Card with 512K Video RAM
- 14" Super VGA Color Monitor (1024 x 768 res.)
- 2 Serial, 1 Parallel Ports
- Enhanced 101 Keyboard
- 200 Watt UL Power Supply
- Mini Desktop/Tower Case with 5 openings
- High Resolution Mouse

$1050

386SX/25

- 2MB RAM
- 1.2MB & 1.44MB Floppy Drives
- 40MB (22ms) Hard Disk
- 16-bit VGA Card with 512K
- 14" Super VGA Color Monitor (1024 x 768 res.)
- 2 Serial, 1 Parallel & 1 Game Port
- Enhanced 101 Keyboard
- 200 Watt UL Power Supply
- Mini Desktop/Tower Case with 5 openings
- High Resolution Mouse

$895

NOTEBOOKS 386SX/25

- 2MB RAM (Expand to 5 MB)
- 1.44MB, 3 1/2" Floppy Drive
- 60MB (18ms) Hard Drive
- 640 x 480 resolution, 32 shades of grey VGA monitor
- 3 hr. charge Ni-Cad Battery Pack
- Carrying Case
- Low Battery Warning
- 11.6"H x 8.7"W x 2.3"D, 7 lbs.
- Scanner Controller
- Optional 80 MB Hard Drive
- Optional Internal Fax Modem Card

$1645

386DX/33

- Configured as above except:
- 4MB RAM
- 80MB Hard Drive

$2395

New Technologies

11845 Telegraph Road
Santa Fe Springs, CA 90670
Tel: (310) 948-2060
Fax: (310) 942-0440

461 N. Lake Avenue
Pasadena, CA 91101
Tel: (818) 356-0391
Fax: (818) 356-0068

19230 Colima Road
Rowland Heights, CA 91748
Tel: (818) 965-7004
Fax: (818) 913-6936

630 South Grand Avenue,
Suite 101
Santa Ana, CA 92705
Tel: (714) 542-1800
Fax: (714) 542-1866

Terms and Conditions:
- Corporate, Government & School PO's Welcome
- Visa or Mastercard Welcome. No Surcharge.
- COD orders accepted.
- California shipping address must add appropriate tax.
- Returns require RMA.
- Refunds or credits under our 30 Day Money Back Guarantee will be less original shipping costs.
- Prices subject to change without notice.

HIGH SPEED GRAPHIC SOLUTIONS

INTRODUCING THE MULTI-MEDIA PERSONAL COMPUTER

486-50 ACCELERATOR	486-50 LOCAL BUS	486-33 HI-COLOR	486-33 DELUXE	386-33 SUPER VGA	386SX-25 STATION
♦ 80486-50 ♦ 8MB RAM w/256K ♦ 200 MB HD ♦ TEAC 1.2 & 1.44MB FD ♦ Orchid Fahrenheit w/1MB ♦ Super IDE I/O 2S/1P/1G ♦ Fujitsu FKB4700 KB ♦ 14″ VESA NI Monitor ♦ Medium Tower Case ♦ DOS 5.0 & Window 3.1 ♦ Hi-Resolution Mouse	♦ 80486-50 ♦ 4MB RAM w/256K ♦ 200MB HD ♦ TEAC 1.2 & 1.44MB FD ♦ 32 bit ET4000 SVGA 32K ♦ Super IDE I/O 2S/1P/1G ♦ Fujitsu FKB4700 KB ♦ 14″ VESA NI Monitor ♦ Medium Tower Case ♦ DOS 5.0 & Window 3.1 ♦ Hi-Resolution Mouse	♦ 80486-33 ♦ 4MB RAM w/256K ♦ 120MB HD ♦ TEAC 1.2 & 1.44MB FD ♦ 16 bit ET4000 SVGA 32K ♦ Super IDE I/O 2S/1P/1G ♦ AT 101 Key KB ♦ 14″ VESA NI Monitor ♦ Medium Tower Case ♦ Free Window 3.0 ♦ Hi-Resolution Mouse	♦ 80486-33 ♦ 4MB RAM w/64K ♦ 120MB HD ♦ TEAC 1.2 & 1.44MB FD ♦ Trident 8900C w/1MB ♦ Super IDE I/O 2S/1P/1G ♦ AT 101 Key KB ♦ 14″ Super VGA .28 dpi ♦ Mini Tower Case ♦ Hi-Resolution Mouse	♦ 80386-33 ♦ 4MB RAM w/64K ♦ 120MB HD ♦ TEAC 1.2 & 1.44MB FD ♦ Trident 8900C w/1MB ♦ Super IDE I/O 2S/1P/1G ♦ AT 101 Key KB ♦ 14″ Super VGA .28 dpi ♦ Mini Tower Case ♦ Hi-Resolution Mouse	♦ 80386SX-25 ♦ 2MB RAM ♦ 42MB HD ♦ TEAC 1.2 & 1.44MB FD ♦ 16 bit VGA w/256K ♦ Super IDE I/O 2S/1P/1G ♦ AT 101 Key KB ♦ 14″ VGA Monitor .39 dpi ♦ Mini Tower Case ♦ Hi-Resolution Mouse
				THIS MONTH'S SPECIAL	**THIS MONTH'S SPECIAL**
$2498	**$2388**	**$1738**	**$1558**	**$1198**	**$858**

CAD/CAM
32 BIT LOCAL BUS
50 MHz

- ♦ 32 Bit S3 Graphics Accelerator + 32K COLORS
- ♦ Intel 80486-50
- ♦ 200MB IDE Hard Disk Drive
- ♦ IDEK 5217 17″ FLAT Screen Monitor
- ♦ Medium Tower Case w/230W Power Supply
- ♦ 32 bit Super IDE I/O
- ♦ 8MB w/256K Cache
- ♦ TEAC 1.2 & 1.44MB Floppy Drive
- ♦ FUJITSU FKB4700 101 Keyboard
- ♦ MS DOS 5.0/MS Windows 3.1/High Resolution Mouse

$3188

PERIPHERALS UPGRADES

Item	Price
♦ IDEK 5117 17″ Monitor, 50KHz	$990
♦ IDEK 5317 17″ Monitor, 65KHz	1160
♦ IDEK 5217 17″ Monitor, 57KHz	1050
♦ Tatung 14 UAE 14″ Low Radiation	350
♦ Tatung 1498 x 14″ SVGA	280
♦ APlus 3D+, 14″, .28dpi, NI, VESA 28-62 KHz	350
♦ Zyxel 14400 bps Fax/Modem	325
♦ 9600/2400 Fax/Modem	95
♦ 2400 bps Internal Modem	50
♦ Colorado 120MB Tapeback	209
♦ Helio Turbocolor 1280 TC256	499
♦ Helio TurboColor 1280 TX16	359
♦ Orchid Fahrenheit 1280 w/1MB	269
♦ Diamond Stealth w/1MB	279
♦ Diamond Speed Star HiColor	170
♦ NCR Graphic Engine w/2MB	150
♦ Tseng Lab HiColor w/1MB	120
♦ WD P1D w/1MB	85
♦ MS DOS 5.0	45
♦ MS Windows 3.1	45
♦ FUJITSU FKB4700 Keyboard	50
♦ BTC 102 Keys Keyboard	30

5 Year Labor, 1 Year Parts Warranty for Any Systems

(818) 333-3142 • Fax: (818) 968-3704

15046 E. Nelson Ave., Unit 1, City of Industry, CA 91744

30 Day Money Back Guarantee ♦ Prices Subject to Change Without Notice
Government ♦ University & Corp P.O. ♦ Ask for Discount Program

Store Hours: Mon-Fri: 10:00AM-7:00PM ♦ Sat: 11:00AM-5:00PM

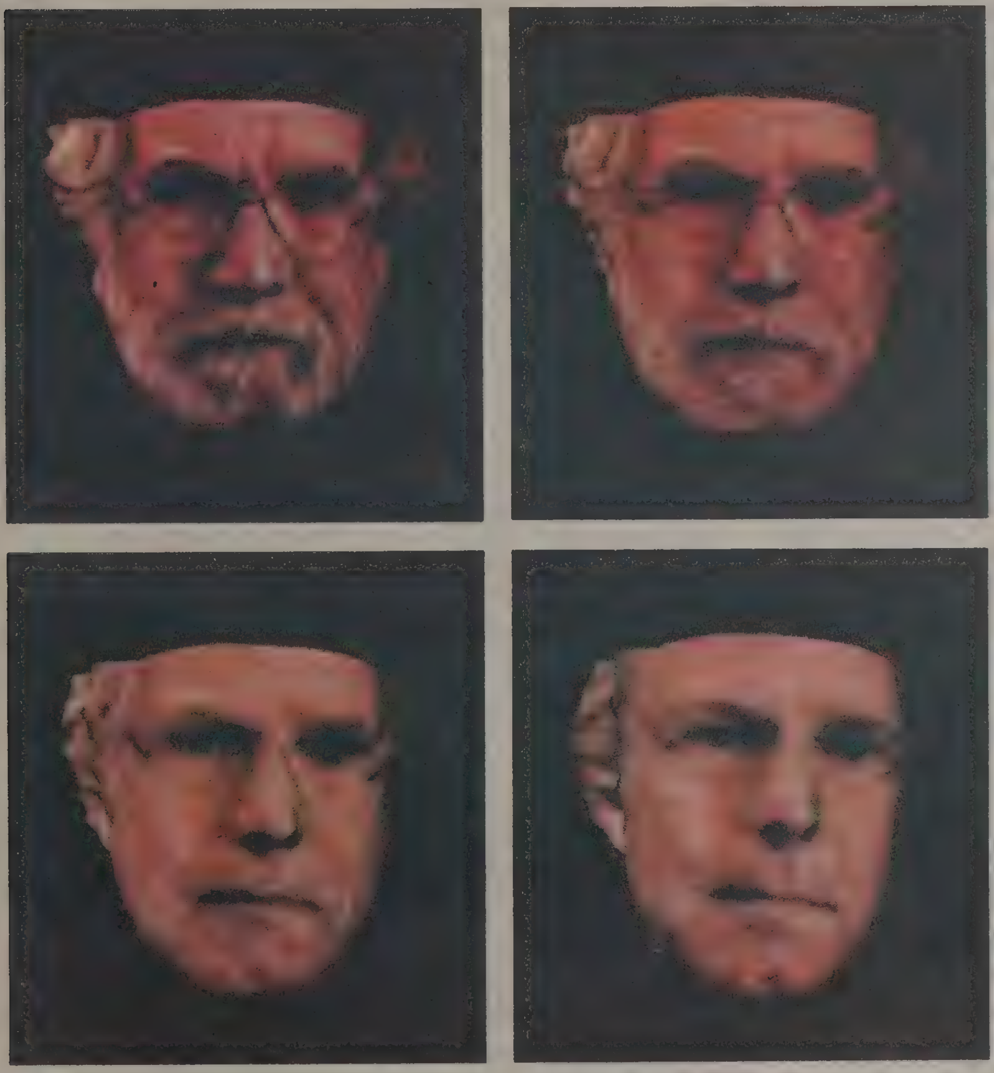
MasterCard VISA

WECLY

CREATIVE TOOLS

Truckin' In Style

Iris Jams With The Dead



Morphing guitarists: Jerry Garcia turns into Bob Weir.

BY MARY EISENHART

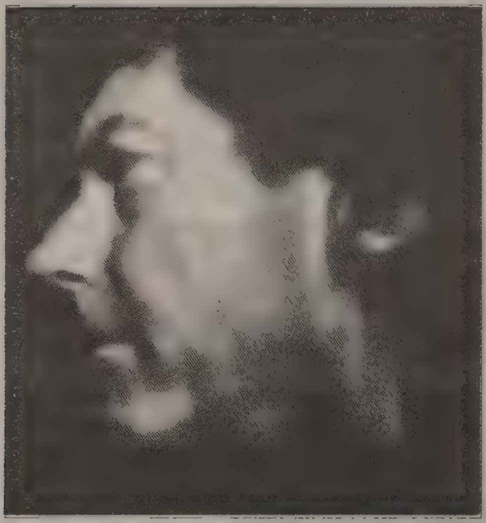
Some months ago, the Grateful Dead, contemplating their twenty-seventh year on the road and the ever-larger venues needed to accommodate their growing crowds, decided the computer video at their shows needed work. Long noted for fanatical perfectionism in the area of sound, and justly renowned for effects created by lighting director Candace Brightman, the technology-conscious band decided that the video portion of the GD concert experience wasn't up to their standards.

These days most self-respecting rock 'n' roll groups hit the stadium tour circuit with a dazzling array of techno-toys designed to enhance the concert experience—lights, videos, animations, and graphics add new dimensions to the music itself. Even for unfortunate audience members a football field's length from the musicians, technology goes a long way toward creating a compelling show.

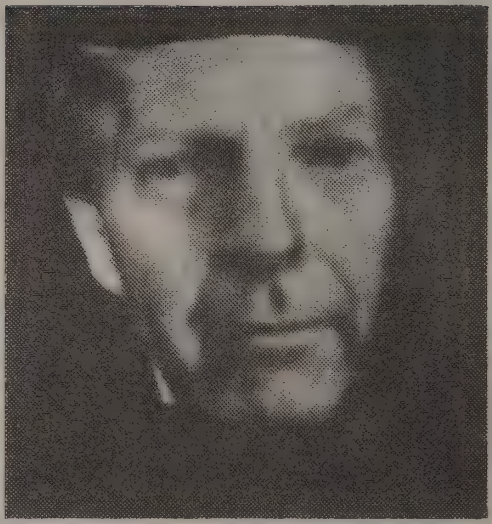
But a Dead show presents unique problems for a video crew.

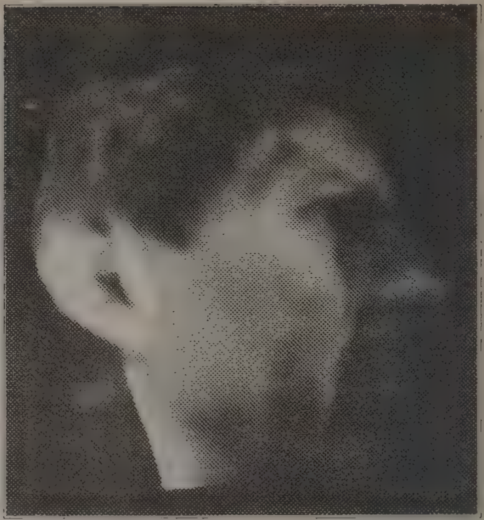
Says Grateful Dead video director Bob Hartnett, who's previously toured with the likes of Janet Jackson and ZZ Top, "Whereas

A Dead show presents unique problems for a video crew. Says Grateful Dead video director Bob Hartnett, "Whereas most tours are highly choreographed, right down to the seeming ad libs, here it's totally improvisational all the time."



Inventor examiner view of bassist Phil Lesh, scanned in 3-D.





most tours are highly choreographed, right down to the seeming ad libs, here it's totally improvisational all the time."

The Dead have a working repertoire of around 250 songs. Nearly one hundred times a year, they walk onstage with no very clear idea of what they're going to play that night. It will probably not include anything they played the night before—six-day runs with only three songs repeated are not uncommon. New songs appear without warning. Consequently, says Hartnett, "It's really hard for us to bank or pre-store effects, pre-produce material for it, because on any given night, any song could follow any other song. So that aspect is really challenging."

Not only that, the Deadhead audience is none too receptive to the prefabricated. For one thing, many of them work in technology fields and are quite familiar with the state of the art. For another, unlike other fans who are content to catch the Madonna tour when it comes to their home town, Deadheads *expect* every show to be different, and travel a good deal in order to catch as many concerts as possible.

"Night to night," Hartnett explains, "we have a lot of the same audience. They have such a loyal following—we can't do the same thing twice. What gets cheers on one night is commonplace the next night, so we have to constantly reinvent and redo the way we do each individual song."

SKULL AND IRIS

Hartnett, a free-lance video professional based in San Francisco, spends most of his time working in live concert video, usually in conjunction with Bill Graham Presents at the Shoreline Amphitheatre in Mountain View, which has its own dedicated video system. But he says it was his work in broadcast video—MTV, VH-1, CNN, Satellite News Channel, and CNN Headline News, where he was design director—that attracted the Dead, who were especially interested in effects and show design. "They wanted to bring video up to the same state-of-the-art level that their lighting and sound have always been," he says.

He laughs, "There was so much technology available, because so many Deadheads are into high technology—computer design, NASA... So I started trying to find out what freebies we could have!"

Meanwhile, across the street from the Shoreline at Silicon Graphics, another of those fabled SGI under-the-table projects was in full swing—an attempt to develop a computer system for rock 'n' roll touring. SGI's Ron Fischer had been working with percussionists D'Cückoo, and when D'Cückoo opened the Dead's Mardi Gras show in February, lighting director Candace Brightman asked him to keep the equipment set up and do graphics for the Dead's set. Everybody liked the result.

And so, for the June tour, SGI lent the Grateful Dead a top-of-the-line system: a 4D/420 VGXT workstation, with two CPU boards with MIPS processors running at 40MHz, lots of RAM, and lots of disk. Along with the system went operator and programmer David Tristram, a former NASA employee. After a pair of shakedown shows at Shoreline in May, Tristram and the Iris went to Buffalo, New York, Washington DC, Chicago, and Columbus.

Within hours of the first Shoreline shows, the nets were abuzz with talk about the new computer video. Tristram was combining live video from the stage with footage from videodisk, and adding effects created by ElectroPaint, a real-time paint program he'd written, and Dancing Marionette, a program written by Fischer using the Iris Inventor toolkit.

"What we do is pretty much generate live computer animation in real time," explains Harnett. "Before, the Dead had used something called a Fairlight, which is kind of antiquated at this point—it was sort of a disco early-graphics-station paintbox kind of thing. But the VGXT workstation from SGI is much more sophisticated in terms of application and output. All the psychedelic overlays that we use to layer in keys during the performances are generated in real time, with the operator, David Tristram of SGI, pretty much jamming video-wise when the band jams onstage music-wise.

"It's a rather sophisticated arrangement. We needed to go through a bunch of different decoder systems to get the one that really lets us time the SGI gear to the switcher, so we can interface it with the various other elements of the show—cameras and tape decks and laser discs and all that kind of stuff.

"We ended up using a Grass Valley encoder and decoder. Basically the computer puts out a component signal, and we're using an analog system, so when we're going out of the computer into our system we have to go from component to composite into our system. And then to input stuff that David can grab and treat—camera pictures, or tape pictures, or anything like that—we have to go from composite on our end back into component to get it back into the SGI computer.

"The SGI computer is really fascinating, because he can designate a portion of his workscreen as a standard television NTSC 525-line output. He can designate any part of his monitor as the output that we're seeing in video. He can move that area around so we can center things and position things. Then we also use it to capture stills during the show—pick up a still picture and save it, that we'll put up in between numbers during a blackout. So we're getting a lot of mileage out of that one box."

MORPHING IN THE BAND

The real crowd-pleaser among the effects seems to be a morphing sequence in which the faces of the musicians melt sequentially into each other. Creating the sequence was a large collaborative undertaking, and involved a visit to SGI by the band members to have their heads scanned for a database.

SGI CEO Ed McCracken explains: "You sit

continued on page 150

SIMPLY AFFORDABLE ! SUPERB QUALITY & SERVICE

Your Summer Savings on 386DX/40Mhz System

$1,320

MICROSOFT. WINDOWS.
Version 3.1

- Selectable Speed 40/8Mhz
- AMD 386-40 CPU '0" wait state
- AMI BIOS
- 64K Cache exp. to 256K
- 1.2 & 1.44 Floppy Drive
- 120MB Hard Drive
- SVGA Video Card w/512K
- SVGA Monitor 14" .39/ 1024x768
- 2 Serial / 1 Parallel / 1 Game Port
- 101 Enhanced Keyboard
- Mini Tower Case w/200W Power Supply
- Mouse w/Windows 3.1
- DOS 5.0

★ Various configurations on 286, 386SX, 386DX, 486SX and 486DX series are available. Call for details.

CD ROM w/Software Package

- Illus. Encyclopedia/Ref. Library
- Toolworks Atlas/Game Pack
- N. G. Mammals

$299

Our Best Selected Parts Assure Reliability & Performance

CASE & POWER SUPPLIES	
DESKTOP CASE W/200W P.S.	$ 65.00
MINI TOWER CASE 4 BAYS W/200W P.S.	$ 65.00
MINI TOWER CASE W/DIG.DIS. 4 BAYS W/200W P.S.	$ 70.00
FULL SIZE TOWER 6 BAYS W/230W P.S.	$125.00
AT 200W MINI POWER SUPPLIES	$ 34.00
AT 200W FULL SIZE P.S. UL	$ 48.00
AT 250W P.S. FOR TOWER CASE, UL	$ 55.00

MOTHERBOARDS W/CPU	
XT-12 MB	$ 32.00
286-12MHz	$ 68.00
286-16MHz	$ 73.00
386SX-25MHz, 8MB/PHOENIX BIOS	$ 125.00
386SX-25MHz, 16MB/AMI BIOS	$135.00
386SX-33MHz, 16MB/64K CACHE/AMI BIOS	$205.00
386DX-25MHz, 8MHZ/AMI BIOS	$ 198.00
386DX-40MHz, 32MB/64K CACHE/AMI BIOS	$ 235.00
486DX-33MHz, ISA, EXP. 64MB/256K CACHE/AMI BIOS	$ 565.00
486DX-33MHz, EISA, 128MB/256K CACHE/AMI BIOS	$ 790.00
* MEMORY AVAILABLE FOR BOARDS	

HARD DRIVES	
40MB HARD DRIVE, IDE/28MS	$ CALL
80MB HARD DRIVE, IDE/18MS	$ CALL
120MB HARD DRIVE, IDE/19MS	$ CALL
200MB HARD DRIVE,16MS	$ CALL
360MB HARD DRIVE,14.5MS	$ CALL
676MB HARD DRIVE, 16MS	$ CALL

FLOPPY DRIVES	
MITSUMI JAPANS FINEST	
360 K 5 1/4"	$ 40.00
1.2MB 5 1/4"	$ 52.00
1.44MB 3 1/2"	$ 50.00

GRAPHIC CARDS	
MONO GRAPHIC W/PP	$ 15.00
COLOR GRAPHICE W/PP	$ 18.00
OAK VGA 16 BIT 800x600 256K	$ 35.00
ACUMOS II VGA/512K/GUI/VESA	$55.00
TRIDENT 8900C SVGA 1024 x768 1MB	$ 78.00
ET4000 SVGA/32K CLR/1MB/VESA	$115.00
DIAMOND SPEEDSTAR VGA 1M HI CLR	$ 185.00

MONITORS	
12" AMBER	$76.00
14" MONO PAPERWHITE	$ 86.00
MONO VGA PAPERWHITE	$ 135.00
14" CGA/RGB MONITOR	$135.00
14" SVGA .28/1024x768	$285.00
14" SVGA .28/NI/1024x768	$320.00
15" SVGA .28/NI/1280x1024	$540.00
17" SVGA .26/NI/1280x1024	$1050.00

KEYBOARDS	
MITSUMI 101KEY ENHANCED	$24.00
BTC 101KEY TACTILE	$ 27.00
FOCUS 2001 101KEY TACTILE W/COVER	$ 40.00
FOCUS 8000 111KEY/SOL CAL	$50.00
FOCUS 5001 130KEY 24 FNCTN & SOL CAL	$ 62.00
KEYBOARD EXTENSION CABLE	$9.00

PRINTERS W/6FT CABLE	
PANASONIC KX 1180i (9PIN/240CPS)	$185.00
PANASONIC 1123 (24PIN/240CPS)	$245.00
PANASONIC 1624 (24PIN, 132COL)	$380.00
PANASONIC KX-P4410 (5PPM/512KB RAM)	$730.00

NETWORKING	
ARC120 8 BIT STAR/BUS/COAXIAL/TP	$ 58.00
ARC210 16 BIT STAR/COAXIAL	$ 88.00
ETHERNET ET100 8 BIT	$112.00
ETHERNET ET-200 16 BIT	$130.00

OTHERS	
MODEM, 2400 BAUD INT	$38.00
MODEM, 9600 FAX S/R	$ 110.00
MOUSE, 3 BUTTON SERIAL	$ 12.00
MOUSE, SERIAL W/ TELEPAINT	$ 32.00
MOUSE, BUS W/ TELEPAINT	$ 33.00
MOUSE, SERIAL W/WINDOW 3.1	$ 64.00
TAPE BACKUP 60M/120M INT	$ 220.00
TAPE BACKUP 120M/250M INT	$ 285.00

*Distributers & Dealers please CALL for Volume Purchases.
*Ask for Warranty Information.

AND MORE SAVINGS FROM OUR SUPERIOR AFTER SALE SERVICE !

- ☑ Superior quality assurance from a rugged 48 hour burn-in endurance test
- ☑ 7 year labor & 1 year parts warranty
- ☑ 30-day money back guarantee *(15 days for parts)*
- ☑ Toll free technical support 1-800-783-6378
- ☑ Custom configuration
- ☑ Volume purchasing discount available
- ☑ Expert handling of corporate, government & university P.O.s
- ☑ No surcharge for credit cards
- ☑ Express order processing - same day for parts & 3 days for systems (Subject to parts availability)

SYNTAX COMPUTER, INC.

Manufacturing & Distribution

1-800-536-8900

1-818-854-6363 Fax 1-818-854-6366

18535 E Gale Ave., Industry, CA 91748-1356

All trademarks are registered trademarks of their respective organizations.
All prices and products are subject to change without prior notice.

Business Hours: Monday - Friday 8:30 - 6:00
Saturday 8:30 - 3:00

Talking To The Mac

And Other News From The Developers Conference

BY DAVID MORGENSTERN

Our family braved the Haight Street Fair the other day—the Summer of Love street. I will admit to not wearing my BMUG tie-dyed T-shirt to the event. This was not out of a worry that I might be out of place, because the shirt that reads *the BMUG T-shirt: Tie-dyed in Berkeley by Deadheads* is always in fashion. Instead, I feared that I would blend in too closely with the ubiquitous tie-dyed clothing worn by the natives of the district.

I settled on the gray 1991 Boston Macworld Expo shirt that displays a BMUGer leaping across the globe, thinking that it would be both acceptable and noticeable. As we joined the teeming throngs, I found that my strategy worked perfectly. I met a half dozen sunburned BMUG West members and a couple of groovy Macintosh developers enjoying the fusion jazz/rock/something-or-other. Summer in the City and BMUG—the perfect combination.

TALK IS CHIP

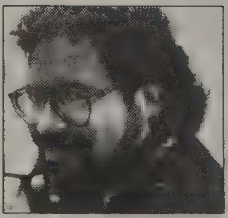
Everyone's favorite Star Trek movie scene is when Scotty picks up a Macintosh mouse and begins speaking commands into it. If only computing was that easy in real life! The technology of speech synthesis and recognition is the most intriguing for the casual user. Macintosh programmers were shown the near future at the recent World Wide Developers Conference (WWDC) in San Jose.

BMUG

Casper is the code name for Apple's speech recognition technology. John Sculley showed it on television, so it's not a deep dark secret. Unlike other products around for the Mac and other computers, it has the ability to handle continuous speech instead of being fed each word one at a time. It also is speaker independent, meaning that it does not have to be trained each word by the user. Say what?

The speaker-independent software uses mathematical models of words derived from the voices of hundreds of people. You don't have to spend so much time training it, since it has already "learned" the different ways people speak. The designers sampled the voices of people around the Apple campus, having them read a few hundred business- and Mac- oriented phrases. The voice donors received a T-shirt printed with the phrases "I helped the Mac recognize speech," and "I helped the Mac wreak a nice beach." Puns give speech recognition fits.

> *When boarding an airline flight, remember that you'll need to demonstrate that it really is a computer, and not a fancy shell filled with plastic explosives.*



Copyright © 1992 by David Morgenstern. All rights reserved.

David Morgenstern believes that computers and BMUG can cultivate a positive change in the world. He volunteers time at BMUG, when he's not working his "regular job," writing, or prowling around the BMUG Bulletin Board. He can be reached through the BMUG office, AOL: daviD eM, CIS: 72030,1607, and Internet: davidm@sfsuvax1.sfsu.edu.

A few years ago, Apple warned developers that the ancient speech synthesis software, MacinTalk, would no longer be supported in future operating systems. It was originally programmed on a contract basis so that the first 128K Mac could introduce itself at the rollout. In typical fashion it said, "I am Macintosh," and then proceeded to put down IBM mainframes. The software doesn't work under System 7, to the dismay of chattering Mac fans.

Attendees of the Noise 101 session at the WWDC saw the plans for the System 7 Speech Manager and the new MacinTalk II. Several versions of MacinTalk II were shown that ran under different memory requirements: a low-quality version taking up around 100K and a better-quality one claiming 1.5MB. The demonstration compared the old MacinTalk, DECTalk, and MacinTalk II. The new MacinTalk sound was compared favorably to DECTalk, which is a $4000 program!

The combination of these speech technologies will give additional flexibility for ordinary people to use the data on their computers. You could call your computer on the phone and tell it to perform some actions. It would verify its instructions by reading back your commands over the phone. You could get your data read to you right there or have it send a fax to your office. Since these technologies work in the background, you could have it read you your electronic mail while you're doing something else useful—like watching the baseball game on the monitor.

Also shown (or heard) was the next generation of speech synthesis software, code named Galatea. Galatea was the statue that the goddess of Love brought to life for the sculptor Pygmalion. The male and female Galatea voices were judged the best, and had all kinds of intelligent features. The software knew all about grammar and punctuation, giving various inflections depending on context. It could correctly interpret the difference between Dr. (Doctor) and Dr. (Drive), or the noun/verb differences in "I will record a record." This neat technology will also need to eat a lot of processor time, so here's another reason to start saving for a really powerful machine.

This is exciting stuff, but don't bug your dealer when you don't see it on the shelf anytime soon. The rumored 1993 release Digital Signal Processor flavored "Cyclone" Macintosh model may have a Lite version of the Speech Manager in its 2MB ROM. The old saying goes, "Speech is hard, but who can keep quiet?" Now your computer wants to get in the act.

ABSOLUTE POWERBOOK

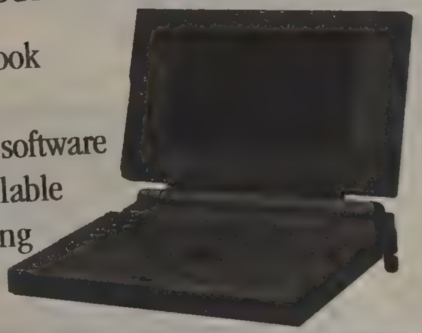
One of our popular new Special Interest Groups (SIGs) is the PowerBook SIG. The

$2,000,000 Macintosh BLOWOUT!

We will meet or beat ANY advertised price by any authorized Apple® dealer on any Apple brand product!*

Apple® Macintosh® Powerbook™

- Macintosh power with notebook convenience
- runs virtually all Macintosh software
- RAM expansion to 8MB available
- unique stress/fatigue reducing ergonomic design



PowerBook BLOWOUT!

PowerBook 100 2/20 w/ Superdrive™
$996

PowerBook 170 4/80
$3479

PowerBook 140 4/80
$2359

PowerBook 170 8/80
$3679

GREAT DEALS ON APPLE MACINTOSH COMPUTERS

Apple Macintosh IIci

with 5MB RAM

- excellent choice for business
- Up to 70% faster than the Macintosh IIsi
- Includes cache card keyboard and monitor not included

$2449

Apple Macintosh IIsi

5MB RAM / **80MB** HD

- color and sound capabilities
- flexible monitor support built-in
- features 20MHz 68030 microprocessor keyboard and monitor not included

$2159

Apple Macintosh LC II

4MB RAM / **80MB** HD

Complete System!

- excellent choice for education or business use
- Displays 32,768 colors with included VRAM
- flexible monitor support built-in keyboard and Apple 12" RGB display included

$1899

LOW FINANCING AVAILABLE!

THE WORLD'S LARGEST
Amiga Superstore

Amiga 3000

$1995

Amiga's top of the line MULTIMEDIA computer! Incudes 25MHz 68030, 52MB HD, AmigaVision, & FREE Modem!

Amiga 2000

$895

Video Toaster Systems

'030

- Amiga 2000 w/25MHz '030
- Toaster 2.0
- 52mb HD
- 7mb RAM
- 14" monitor

$4399

All systems are assembled and tested by factory authorized technicians.

Power User Workstation

- Amiga 2000
- Zeus 28MHz '040 W/ SCSI-II
- Toaster 2.0
- 120mb SCSI HD
- internal Syquest 88mb drive w/ cart.
- 17mb 32-bit RAM
- 14" RGB/Composite monitor
- 2 Personal TBC II (or at your request Kitchen Sync)

$8999

Entry Level Workstation

- Amiga 2000
- Toaster 2.0
- 52mb HD
- 7mb RAM
- 14" monitor

$3999

'040

- Amiga 2000 w/28MHz '040
- Toaster 2.0
- 120mb HD
- 9mb 32-bit RAM
- 14" monitor

$5989

All systems use only high quality Amiga 2000's and the NewTek Video Toaster 2.0

*Lease payments based on a 3 year lease term fair market value purchase option. Leases for businesses only on approved credit. Minimum lease $1000. Apple, the Apple logo and Macintosh are registered trademarks of Apple Computer, Inc. Classic is a registered trademark, licensed to Apple Computer, Inc. PowerBook, Quadra, Quickdraw, and Superdrive are trademarks of Apple Computer, Inc. Postscript is a registered trademark of Adobe Systems, Inc. Prices subject to change without notice. Prices listed are cash only.

Creative™ COMPUTERS

VISA MasterCard

Two great locations:

South Bay - Open Mon-Sat 10-7, Sun 11-6
(310) 542-2292 - 4453 Redondo Beach Blvd., Lawndale

Westside - Open Mon-Sat 10-7, Sun 11-6
(310) 394-7779 - 318 Wilshire Blvd., Santa Monica

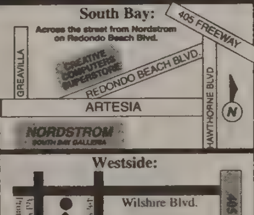
Authorized Dealer

HEWLETT PACKARD
Authorized Dealer

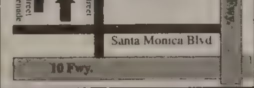
Authorized Reseller

South Bay:

Across the street from Nordstrom on Redondo Beach Blvd.



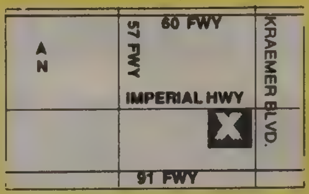
Westside:



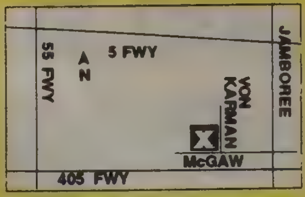
USM

US MACH

5 LOCATIONS TO SERVE YOU



USM BREA
2500 Imperial Hwy. Unit 132
Brea, CA 92621
714-255-0113 213-691-7767
FAX:714-255-0115



USM IRVINE
174145 Von Karman Ane. Suite 109
Irvine, CA 92714
714-252-8335
FAX: 714-252-8354

In
NORTHERN CALIFORNIA
Visit our stores:

USM SAN FRANCISCO
415-952-5885

USM SANTA CLARA
408-980-0602

USM FREMONT
510-623-8040

Incorporated 1983

VISA MasterCard

Price and availability subject to change.
No surcharge for credit cards.

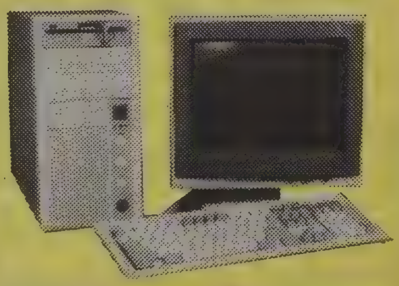
SYSTEM CONFIGURATION BY COMPONENTS

GUARANTEED LOWEST PRICE *PLEASE FAX OR CALL YOUR CONFIGURATION

NEW LOWER PRICE

PRESENTING...THE US MACH EMERALD SERIES

— powerful yet affordable...and complete!



- 4 Meg, 70ns RAM
- 130 Meg Hard Disk, 15ms
- 2 Floppies—1.2MB & 1.44MB
- SVGA Monitor 1024x768 .28 dp
- SVGA Card w/1MB
- 101 Enhanced Keyboard
- 2 Serial, 1 Parallel, 1 Game port
- FREE Serial Mouse
- Enhanced Case, Minitower/Desktop Upgrades Available

USM Emerald 386-33/64k cache	$1140
USM Emerald 386-40/64k cache	1140
USM Emerald 486-33/64k cache	1470
USM Emerald 486-33/256k cache	1520
USM Emerald 486-50/256k cache	1840

BASE SYSTEM

1MB RAM, 1.2 OR 1.44MB Floppy,
IDE 2HD/2FD Controller, 2 S./1 P./1 G. Ports,
101 Keyboard, Minitower Case w/200w PS,
Clock Calendar, Math-co Socket

FREE MOUSE W/PURCHASE OF COMPLETE SYSTEM

COMPLETE SYSTEM

BASE SYSTEM PLUS:
16 BIT VGA CARD,
VGA PAPERWHITE/SVGA COLOR MONITOR
HARD DISK OPTIONAL*

Motherboard W/CPU	Base System		VGA 640X480 Paperwhite	SVGA Color 1024X768 .28
$100	$280	386SX-16	$460	$590
$110	$290	386SX-25	$480	$610
$160	$340	386-25	$520	$650
$210	$390	386-33 64K Cache	$580	$710
$210	$390	386-40 64K Cache	$580	$710
$260	$440	486SX-20C	$630	$760
$470	$650	486-33C	$840	$970
$520	$700	486-33 64K Cache	$880	$1010
$570	$750	486-33 256K Cache	$920	$1050
$880	$1060	486-50 256K Cache	$1230	$1360
$980	$1160	486-33 EISA 256K Cache	$1340	$1470
$1190	$1370	486-50DX2 EISA 256K Cache	$1600	$1730

COLOR SVGA MONITOR

VGA Paperwhite	$115
SVGA 1024x768 .28	265
SVGA 1024x768 .28 N.I.	315

1024x768 .28 dp
$265

FAX-MODEM 96/24 .... $79
Made in USA • 5 Yr. Manufacturer Warranty
Fax Modem 96/24 w/Windowfax Software $99

NEW POCKETFAX MODEM $149

HARD DISK OPTIONS*

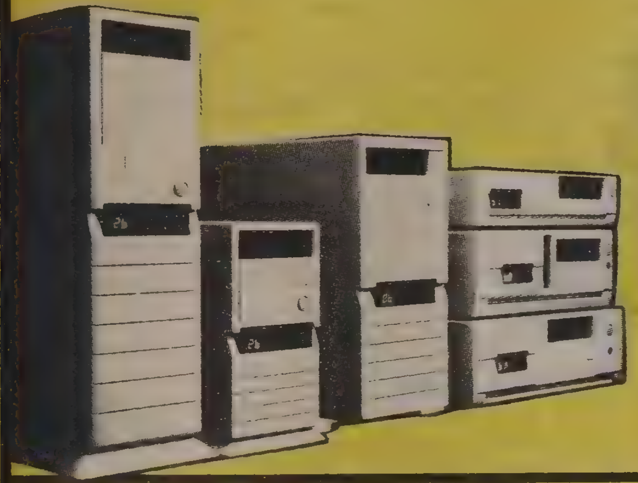
40MB	CALL	120MB/130MB	CALL
52MB/60MB	CALL	170MB	CALL
80MB	CALL	210MB	CALL
105MB	CALL	240MB	CALL

16" Non-Interlaced Monitor $695

US MACH DIAMOND SERIES

32,768 Hi Color SVGA System

USM
US MACH



- 8MB, 70ns RAM
- 200MB Hard Disk
- PIXEL FX-72Hz Hi Color SVGA 1MB
- SVGA Monitor 1024x768 .28dp
- NORTHGATE Omnikey Keyboard
- 2 Floppies - Teac 1.2MB & 1.44MB
- DIAMOND Series Minitower/Desktop Case
- 2 Serial, 1 Parallel, 1 Game Port

	200MB
USM DIAMOND 386-33/40 64K Cache	$1790
USM DIAMOND 486-20C	$1850
USM DIAMOND 486-33/64K Cache	$2150
USM DIAMOND 486-33/256K Cache	$2190
USM DIAMOND 486-50/256K Cache	$2490

FREE MS WINDOWS 3.1 or Fax/Modem with Diamond Series Purchase

TOP NAME BRANDS FROM

MICRONICS AMI

FACTORY AUTHORIZED DISTRIBUTOR

ORCHID MYLEX QUICKPATH PERCOM FOXTRON CONNER MAXTOR WD SEAGATE QUANTUM NORTHGATE

AMI *High Performance Motherboards*

486-50 MHz NOW AVAILABLE

AMI 386SX 16/20/25	CALL
AMI MkV 386-33 64k Cache	CALL
AMI Voyager 486SX-20	Special
AMI Baby Voyager 486-33	CALL
AMI Super Voyager 486-50	CALL
AMI Enterprise II 486 33/50 EISA	CALL
AMI SCSI Cache EISA Controller	CALL
AMI EZ-Flex 486	CALL

MICRONICS

- 386SX-25
- 386-33/40/64K Cache
- 486-33/50 ISA/EISA

NEW LOWER PRICING

QUICKPATH

Made in USA, Motherboards

486 CPU UPGRADABLE

486 w/o CPU $390

486-33 w/CPU . $790

Quantum – Prima Computer, Inc.

ZYTEX

Made in USA, Motherboards 486-50MHZ $950

International Computers

Made in USA, Motherboards

486-50MHz	CALL
486-33/50 EISA	CALL

THE ULTIMATE 386SX NOTEBOOK

CYCLONE XG™ Windows Accelerator Winner $275

1992 W 100 WINDOWS MAGAZINE ANNUAL WIN AWARD

The New US MACH Notebook The Ultimate Notebook Machine

- 386SX 16/20MHz CPU
- 40/60MB Conner Internal Drive
- 1.44MB 3.5" Floppy Disk Drive
- Backlit VGA display with High Contrast LCD & 16 Gray Levels
- 2MB RAM Expandable to 6MB
- NiCad battery & charger included
- 6.3 lbs. w/battery

Limited Time Factory Sale

NB 386SX-16/2MB/40MB HD $1250

Please allow 2-3 weeks delivery due to demand

ORCHID New! Super Board 486-50MHz

Local Bus—Fahrenheit 1280D

Pro II - 1MB	$BEST
Pro IIS/Sierra	$BEST
Fahrenheit 1280	$BEST
386-40/128kC MB	$BEST

$CALL

32,768 VGA Colors FX-72Hz

Pixel FX-72Hz Hicolor VGA - 1MB $145

Pixel S3 Windows Accelerator w/1MB VRAM $245

NORTHGATE OMNIKEY

101 KB OEM	$25
Keytronics 101	45
Focus 2001	55
101NI	$69
102	69
ULTRA	99
ULTRA T	109

Together Again

SEYBOLD SAN FRANCISCO

September 22-25, 1992 • Moscone Center

Sey bold (sē′ bōld), *n.* **1.** the definitive conference and exposition for people who use computers to communicate information; **2.** the company which creates and produces these milestone events; **3.** The Jonathan.

San Fran cis co (san′ frən sis′ kō-) *n.* **1.** seaport on the coast of north central California, separated from Oakland by an inlet, and from the rest of the U.S. by a state of mind; **2.** setting for fabulous restaurants, entertaining diversions and memorable encounters; **3.** where Seybold (see above) will be this September.

Plan to get together with industry leaders, fellow computer publishers and other communications professionals as Seybold and San Francisco get together again this September.

SEYBOLD SAN FRANCISCO

By definition, the place to be.

Call 800-777-6650 or 310-457-8500 for the complete event brochure.
Or download it from the Seybold board on AppleLink.

members do not necessarily meet at the BMUG office, but depending on the weather, hang out in public parks and local brew pubs to talk about computing on the go.

Although most of us are not lucky enough to have a PowerBook, we probably know someone who can't leave the house without a computer. Here are a few things to keep in mind if you're a PB SIG groupie or notebook wannabe.

- PowerBooks make poor frisbees. Too many owners have seen their notebooks fly out of their hands and crash on the floor. This recently happened to a BMUG member while bringing the fresh-out-of-the-box toy into work for show-and-tell. If you must carry the PB around without a padded case, get a good grip on it—you can't hurt it by squeezing it tight! You *love* your PowerBook, right?

- Theft is also a major problem for PB owners. We've had them taken from under our noses in bookstores and libraries. If you're not going to keep the computer in a custom bag hanging from your shoulder, consider the more-is-less solution. Purchase a large bag that can hold everything you own. I use a super-strong "medium" Eddie Bauer bag that can easily hold a Macworld Expo's worth of handouts, jacket, and books, with plenty of room to spare for technology. Out of sight, buried deep in the bag, is out of mind for your techno-thief.

- When boarding an airline flight, remember that you'll have to get your notebook through airport security. As with any portable computer, you need to demonstrate that it really is a computer and not a fancy shell filled with plastic explosives. Booting it up in front of the security guards is usually enough persuasion.

Some international airlines go beyond the simple boot-up test. They may seem to take the machine apart; however, people that have experienced this procedure claim that the officers appear to know what they're doing. Make sure that all spare batteries are charged up ready to go, since you may have to prove that they work too. In any case, you will want to use them on the flight instead of being forced to watch the awful in-flight movie.

- The PowerBook built-in trackball design has a real edge over many of its PC notebook cousins when traveling by air. It seems that a number of airline companies are stopping passengers with PC portables, and warning them about using the machines onboard the airplane. It seems that the computer itself is not a problem, but the various flavors of mice that are used with these systems.

The problem is with shielding for radio noise. Almost all electrical devices radiate a rich mixture of electromagnetic sludge. You've probably heard this racket in the mornings if you grind your coffee near the radio. Computers and other fancy electrical devices use various shielding schemes to prevent this from leaking out. The CIA can supposedly pick up the signals your keyboard generates across the street, so they require spies to use extra heavy-duty mummywrap protection, known as Tempest certification.

Everyone's favorite Star Trek movie scene is when Scotty picks up a Macintosh mouse and begins speaking commands into it. If only computing was that easy in real life!

While the portable computer may be shielded, the mouse is usually not shielded. In high school, we learned that a long piece of wire dangling out the back of a radio helps reception—and broadcast. The mouse cord acts as an antenna for all the noise carefully shielded away inside the computer, allowing it to interfere with the airplane.

BMUG physicists inform me that the mouse acts as a radiating antenna at frequencies which are harmonics of the CPU or bus, depending on the design. Since the clock speed is typically in the 8–24MHz range, the generated harmonics fall into the radio spectrum used for aircraft navigational devices. Playing the harmonica may disturb your fellow passengers, but a mouse playing harmonics will disturb the pilot.

- A frequent question on the BMUG telephone HelpLine has been the trouble that some PowerBook models have had reading some floppies. There are a pair of answers to this strange problem.

It was discovered that the PB floppy drive didn't like the way some machines format 800K disks. These are commercial disk-duplicating machines that seem to format disks a bit differently than regular Macintoshes. The usual workaround for the problem was to take the disk over to another non-PowerBook Mac and copy the files onto a "regular" floppy. The drive controller firmware needed to be fixed and now Apple is offering a swap for problem disk drives. The new improved mechanisms are called Rev B drives and are available from Apple dealers.

The other problem is that the PowerBook 140 disk drive is not properly shielded from a component that handles the display backlighting. It's the same electromagnetic interference problem we saw in the airplanes, but here it's inside the case. The design was changed last winter, but many units shipped with the inadequate design. Apple will install a better shield at no charge to early PowerBook owners, but you can also try switching off the backlight when you come across a disk that can not be read correctly.

These two PowerBook specific problems are compounded by the fact that all FDHD SuperDrives on all Mac models are susceptible to dust buildup problems. There's more dust to find its way into your drive out on the backpacking trail, or on the bottom shelves of an academic library, than on your normal desktop. All Mac owners, and especially PowerBook users, should regularly clean their floppy drives with some compressed air and a dust buster.

If you're having troubles with your PowerBook floppy drive, you should call the repair hotline setup to field the questions. The number is 800-767-2775.

- Many users like the new startup sound of the PowerBooks and Quadras, but in a crowded lecture hall it can sound disturbingly loud. Attempting to counteract this, some poor users have tried turning the speaker volume down to zero, which makes it even louder than before! Unfortunately, if the sound is off, the startup sound defaults to a mid-range setting. A setting of one or two will be quieter than zero. Total silence can be achieved by putting an old earphone plug in the audio-out port.

SHAREWARE SPOTLIGHT

Tim Holmes, BMUG ShortStop and staffer, has put together a special disk for PowerBook users. It's filled with utilities, information, and other notebookworthy goodies. There's InUse that lets you know when your hard disk drive is being accessed. This is essential feedback to help you fine tune your battery saving techniques.

Another useful utility is the BackLite CDEV that will turn off the backlit screen at set intervals. Apple engineers have told BMUG that the backlit screens are only rated for a couple of years' use. When they go bad they will need to be replaced—at a considerable expense. Turning the display off when you don't really need it will save your battery and extend the screen life. It's available from the BMUG office for $4 plus postage and handling.

UPCOMING EVENTS:

July 2	Articulate Systems—Voice Navigator software.
July 9	Knowledge Revolution—Interactive Physics II; Silicon Beach Software—New Product.
July 16	Global Village—TelePort modems and software; Mirror Technologies—Drives and displays.
July 23	Nolo Press Living Trust legal software.
July 27	BMUG West at Exploratorium museum in San Francisco— Adobe Premiere, desktop video software.
July 30	Gold Disk—Surpass multimedia desktop presentation software; Media in Motion—Animation clips, training for Macromind Director.

Call the the BMUG Announcement Line for the latest information on the new BMUG South meetings! 510-849-9114.

To get some further information about BMUG please write to: **BMUG**, 1442A Walnut Street, #62, Berkeley, CA 94709. If you prefer to phone our business office call (510)549-BMUG, or FAX(510) 849-9026.

BAR CODE IS OUR SPECIALTY

Input Automation, Inc. is the single source for all your bar code system needs: hardware, software, consulting and system design. Our philosophy is based on two principles: high-quality industrial products, and the best technical support available.

Design and Consulting
To create your optimal solution, an Input Automation consultant will design a complete system, and then recommend equipment that fills your exact needs.

We will not be satisfied until your bar code system is performing to your demanding standards.

Call today for a free catalog!

IBM PC Keyboard Wedge $299 dealer price

(Dealer inquiries welcome)

Southern California
Tel: 310 • 539 • 3598
Fax: 310 • 530 • 2849
Tel: 714 • 859 • 9223

Northern California
Tel: 510 • 685 • 6563
Fax: 510 • 682 • 6061

SATO Bar Code Label Printers, Software, and Supplies.

Laser Scanners. Omnidirectional, hand-held/ hands-free, fixed mount.

Panasonic Portables. Recognized the world over for quality.

Welch Allyn bar code readers/scanners. Over 15 years leadership in bar code manufacturing.

INPUT automation, inc.
Value-Added Distributor
Bar Code Solutions

© 1991 Copyright Input Automation, Inc. All rights reserved. All product names mentioned are trademarks of their respective manufacturers. Input Automation, Inc. recognizes these trademarks.

Call For Custom System Configuration

BUY AMERICAN

THE BEST NAMES IN: MOTHERBOARDS

MICRONICS

386SX-25NC	$199
386SX-25/32K	$299
386-33/64K	$399
386-40/64K	$449
486SX-20/25NC	$CALL
486DX-33/256K	$749
486DX2-50/256K	$995
486DX-33/50EISA256K	$1199/1599

BEST PRICE GUARANTEED!!!

MADE IN U. S. A.

AMI CACHE

MOTHERBOARDS

386/486 50MHZ ISA/EISA

LOWEST PRICES GUARANTEED!!!

MYLEX

MOTHERBOARDS

386/486 ISA/EISA

Made in U. S. A.

486-50MHZ EISA NOW IN STOCK

Local Bus

Try this new low cost high performance technology with windows blasting speed

LB 486-33 -1MB S3-IDE-I/O	$1099
ORCHID 486-33/ 1MB S3	$1199
ORCHID 486-50/ 1MB S3	$1399

BEST PRICE GURANTEED!!!

MADE IN U. S. A. 2 YR. WARRANTY

DEICO PREDATOR ®

BEST PRICE

- TEN PRODUCTS IN ONE FROM THE 25MHZ 386DX TO 50MHZ 486DX
- BUILT-IN I/O, DUAL FLOPPY, AT INTERF. FOR IDE PS/2 COMPATIBLE MOUSE PORT
- 1 TO 64MB ON-BOARD SIMM MEMORY/ 0W.S
- TOTAL SINGLE BOARD DESIGN

AMPTRON

386SX-25	$ 175
386DX-33	299
386DX-40	299
486DX-33	599
486DX-50	949

HARD DRIVES

MAXTOR

8051A	42MB	$call
7120AT	130MB	$call
LXT200	200MB	$call
4170E/8380/8760		$call

SEAGATE/ CDC

ST-1239A	210MB IDE	$BEST
40/80/120MB		CALL

CONNER

CP3044	43MB	$call
CP3184	84MB	$call
CP30104	104MB	$call
CP3204	209MB	$call

HEWLETT PACKARD

5 YEAR WARRANTY

793/396 Mb ESDI/SCSI	17.0 ms.	$1595/1195
793/396 Mb, SCSI-2,	16.5 ms	$1595/1195
1.18 Gig., SCSI-2,	17.5 ms	$2195
1.60/1.26 Gig., SCSI-2,	13.5 ms	$2795/2495

SUBSYSTEMS

396 Mb / ULTRA 12F Cont. ESDI	$1299
793 Mb /ULTRA 12C+1 Mb ESDI.	$1995
1.2 Gig. / ADAPTEC 1542B	$2495

MICROPOLIS

5 YEAR WARRANTY

340MB(14MS)	ESDI	$999
340MB(14MS)	SCSI II	$1049
676MB(14MS)	ESDI	$1299
668MB(14MS)	SCSI II	$1349
1.2GIG(14MS)	SCSI II	$1795
1.3GIG(14MS)	ESDI	$CALL
1.3GIG(14MS)	SCSI II	$2249
1.3GIG (EXT)	SCSI	$2995
1GIG(EXT)	SCSI II	$2095
ALL OTHERS	ESDI/SCSI	$CALL

VIDEO CARDS

PRINTERS	HP LASER III $1475.00
VGA CARDS	ATI, VIDEO 7 ORCHID DIAMOND
KEYBOARDS	BTC FOCUS FUJITSU OMNIKEY

CONTROLLERS

UltraStor ESDI CACHING CONTROLLERS	12F FD/HD W/ 32 K CACHE . $ 165.00 12C W/ 1Mb /EXP. TO 16 Mb $ BEST 22C EISA CACHE $ 699.00
adaptec SCSI	1522B 2FD/7HD 32K CACHE $ 199.00 1542B 2FD/7HD 64K CACHE. $ 299.00
MYLEX EISA	DCE376 CACHING SCSI CNT. $ 649.00 LNE ETHERNET LAN $ 345.00

MONITORS

SONY	1304		$599
NEC	3FGX/4FG/5FG		$CALL
VIEWSONIC	"6" 1024X768 NI	.28	$369
	"5E" 1024X768 NI	.25	$479
MITSUBISHI	20"		$1849
IDEK	17"/20"		$CALL
GOLDSTAR	1024X768 I		BEST
SAMTRON	1024X768 I		BEST

- **Mix and Match:** Do not settle for less, we have gathered all the best under one roof.
- **Support:** *Soft-Hard Systems* is a company of U.S.S.A Inc., one of the nation's largest American made system manufacturers in the country with over six years of expertise in the micro computer market.
- **GUARANTEE:** we are so confident of our products that we'll offer you a complete 30 DAYS EXCHANGE ON ALL MOTHERBOARDS
- **Price:** we guarantee absolute lowest prices on all our products, whether it is a component or a whole system.

***Best** brands, **Best** quality components, **Best** prices, **Best** support, **Best** people, ...even a toll-free number, so call now,*

818-999-9531

SOFT HARD SYSTEMS

[illegible]
(ORDERS ONLY)

6301 DESOTO AVE #E
WOODLAND HILLS, CA 91367
TECH SUPPORT: (818) [illegible]
FAX: [illegible]

WHAT IS BMUG?

BMUG is an educational, nonprofit, consumer advocacy group organized to share information, and provide critical direction to users and developers in the computer community worldwide. It is an independent advocate, not affiliated with any manufacturer, delivering trustworthy information and useful products.

Like any growing organization, it is many different things to its thirteen thousand international members. BMUG supports many Special Interest Groups (SIGs), a Bulletin Board System (BBS), free HelpLine, software library, weekly meetings, publications, and much more. BMUG also puts out a semi-annual 400+ page book that we call our "newsletter."

Our motto continues to be: *We're in the business of giving away information.*

Come and join in the dialogue at the BMUG main meeting every Thursday evening, 6–9 (or whenever we finish), in the Physical Sciences Lecture Hall on the UC campus. BMUG West is a meeting held monthly in the Exploratorium, San Francisco's science museum.

The BMUG Office, 2055 Center St. (a half block from the BART station) is open to the public 9 am to 5 pm. Please come by and say hello, meet other members, and hang out.

The BMUG HelpLine, (510)540-1742, and our fax number, (510)849-9026, provide technical assistance and telephonic hand-holding during business hours (11 am–5 pm). If your question can't be answered on the spot, we try get you in touch with someone that can help. Of course, not every problem can have a happy ending—but we try.

BMUG has one of the most up-to-date, comprehensive software libraries around, with hundreds of disks filled with the latest versions of public domain or shareware programs, and HyperCard stacks. New disks are unveiled almost every week at the Thursday general meeting. BMUG also brings you the *TV-ROM*™ , a fantastic collection of public domain QuickTime videos.

Our sixteen-line BBS offers many of the latest versions of files in our software library, as well as news, private mail, rumors, etc. The BMUG BBS is part of the worldwide EchoMac Network on FIDOnet (161/444); by calling a local FIDOnet BBS in your area, you would then be able to get in touch with us wherever you are, as well as send mail to users everywhere! With our multiline capability, you can have access to BMUG almost twenty-four hours a day. It's easy to use, fun, and a great resource.

BMUG can be found on most electronic services. BMUG can also be reached through the international USENET network through bmug@*garnet.berkeley.edu*.

Whether your office has one computer or one hundred...

We keep you working

AUTHORIZED TECHNICAL SERVICES has the experience *and* the expertise to handle your equipment service needs. Whether you're running one small office with one micro computer, or a statewide network of offices with a complex inventory of computers, video display terminals, printers, and data communications devices—you simply cannot afford "down time". Call **ATS** today to find out just how easy it is to stay productive after hardware failures.

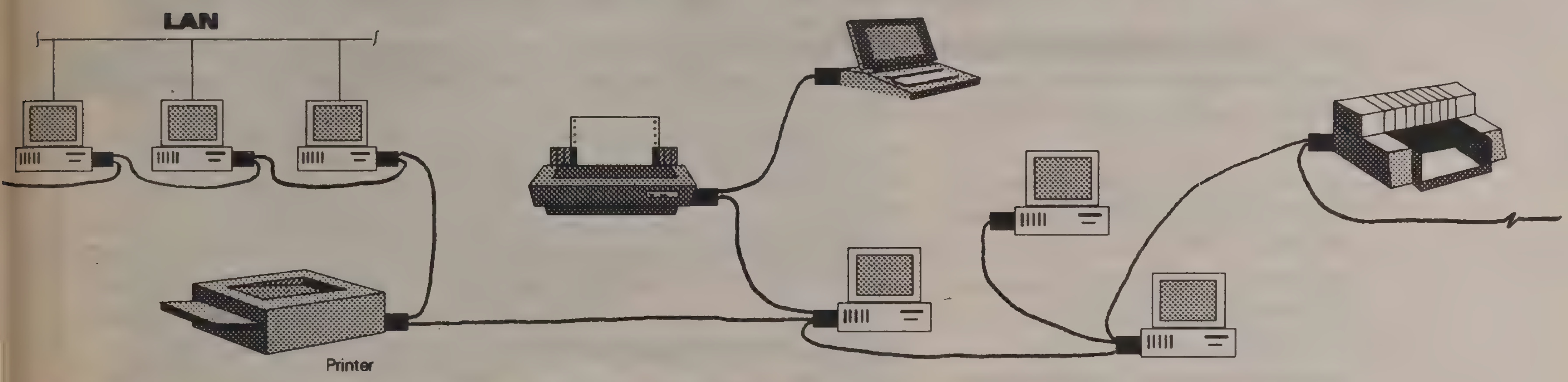
ATS
AUTHORIZED TECHNICAL SERVICES
1-800-451-4057

HERE'S A PARTIAL LIST OF EQUIPMENT WE SERVICE:
MICROCOMPUTERS: Advance Logic (ALR), AT&T, Everex, Leading Edge, AST Research, Compaq, IBM. **LOCAL AREA NETWORKS:** 3Com, Novell. **STORAGE DEVICES:** IOmega (Bernoulli). **DOT MATRIX PRINTERS:** Alps, Datasouth Epson, NEC, Qwint, Texas Instruments, C. Itoh, Digital Equipment (DEC), IBM, Okidata, Printek, Toshiba. **PLOTTERS:** Hewlett-Packard, IBM. **THERMAL PRINTERS:** IBM, Texas Instruments, Panasonic. **LINE PRINTERS:** Data Products, Printronix. **LETTER QUALITY PRINTERS:** C. Itoh, Diablo, NEC Spinwriters. **LASER PRINTERS:** Canon, Epson, Hewlett-Packard. **VIDEO DISPLAY TERMINALS:** Digital Equipment (DEC), Lear Siegler, Liberty (Freedom), Link, Qume, Tab, Televideo, Wyse. **GRAPHICS TERMINALS:** Graph-On, Northwest Digital, Pericom. **DATA COMMUNICATIONS:** Hayes, Prentice.

ATS SERVICE CENTERS:
Los Angeles (310) 839-0020
Orange County (714) 937-0332
Oakland (510) 638-4449
Sacramento (916) 923-2944
San Jose (408) 970-9860

GemTek PrintShare

Intelligent Printer Sharing Adaptors with Unique Multi-Printing Capability



Innovative Features

- Expandable up to 40 computers to share 4 printers
- Easy to install and convenient networking
- 3 identical I/O sockets on each adapter for flexible linkage - Bus, Tree, Ring or any configuration.
- Support both DOS and Windows environments
- Multi-printing - support up to 4 printers simultaneously
- High-speed transmission - up to 10K CPS
- Customize your working environment - place the printer at a remote location up to 1300 feet
- Coexist with LANs to reduce file server's work loads and enhance overall network performance

GemTek Technology
Networking & Communication

Distributed by

ConnectPro
818-401-3132

EMCO
805-499-6871

ConnectPro Ethernet Family

HE-200	16-Bit Ethernet Card (NE-2000 Compatible)	$115
HE-200TP	16-Bit Ethernet Card for 10 BASE-T (NE-2000 Compatible)	$135
HE-2100	16-Bit Ethernet Card (NE-2100 Compatible)	$175
HE-2100TP	16-Bit Ethernet Card for 10 BASE-T (NE-2100 Compatible)	$185

We welcome network consultants and resellers' inquiries.
Please contact ConnectPro for product information package.

ConnectPro

818-401-3132
10637 East Rush Street, South El Monte, CA 91733

RESOURCES

Calendar Of Events

JULY

July 18 Computer Show. LA Fairgrounds, Pomona. Computer Marketplace. Call: 1-800-800-5600.

July 18 DOS/Hard Disk Management Class. Glendale. Computer Education International. Call: (818)242-0828.

July 18 Intro To The IBM PC Class. Monrovia. The Organizers. Call: (818)303-3311.

July 19 Computer Show. Sherman Square Entertainment Center, Reseda. Computer Marketplace. Call: 1-800-800-5600.

July 19 Using The Computer To Schedule A Film Workshop: The Movie Magic Scheduling Program. Los Angeles. UCLA Extension. Call: (310)825-9064.

July 20–22 Sun Open Systems Expo. Anaheim. Sun User Group and PCI. Call: 1-800-727-EXPO.

June 21 Computer Show & Sale. Scottish Rite Center, San Diego. MarketPro Shows. Call: (415)388-8893.

July 21–24 Hands-on UNIX In C Course. Los Angeles. Learning Group International. Call: Kim Sisson, 1-800-421-8166.

July 24 WordPerfect Level II Class. Glendale. Computer Education International. Call: (818)242-0828.

July 25 Computer Show & Sale. CSU, Northridge. Richard James Corp. Call: 1-800-433-7469.

July 26 Computerized Film Budgeting Workshop: The Movie Magic Budgeting Program. Los Angeles. UCLA Extension. Call: (310)825-9064.

July 26–31 SIGGRAPH '92. Chicago. ACM. Call: (312)321-6830. Email: info92@siggraph.org.

July 27–28 The Managing Enterprise Networks Conference. Boston. DCI. Call: (508)470-3880.

July 28 WordPerfect On The Mac Class. Glendale. Computer Education International. Call: (818)242-0828.

June 28 Computer Show & Sale. Pasadena Center. MarketPro Shows. Call: (415)388-8893.

July 28–31 Effective Skills For Technical Managers Course. San Diego. Learning Group International. Call: Kim Sisson, 1-800-421-8166.

July 29 Intro To PCs Class. Glendale. Computer Education International. Call: (818)242-0828.

July 29–30 MS Word On The Mac Class. Glendale. Computer Education International. Call: (818)242-0828.

July 30 Excel On The Mac Class. Glendale. Computer Education International. Call: (818)242-0828.

AUGUST

August 1 Computer Show & Sale. Anaheim Stadium (indoors). Richard James Corp. Call: 1-800-433-7469.

August 2 Computer Show & Sale. Glendale Civic Auditorium. Richard James Corp. Call: 1-800-433-7469.

August 6 & 13 DOS/Hard Disk Management Class. Los Angeles. Computer Education International. Call: (818)242-0828.

August 6 & 13 Intro To PCs Class. Glendale. Computer Education International. Call: (818)242-0828.

August 7 Windows Class. Glendale. Computer Education International. Call: (818)242-0828.

August 8 Computer Show. LA Fairgrounds, Pomona. Computer Marketplace. Call: 1-800-800-5600.

August 8 WordPerfect Level II Class. Glendale. Computer Education International. Call: (818)242-0828.

August 9 Computer Show. Sherman Square Entertainment Center, Reseda. Computer Marketplace. Call: 1-800-800-5600.

August 10–13 Fifth C++ Technical Conference. Portland, OR. USENIX. Call: (714)588-8649.

August 10–14 LUV'92: Second International LISP Users And Vendors Conference. San Diego. Assoc. of LISP Users. Call: Laura Lotz, (215)651-2990.

August 10 & 17 DOS/Hard Disk Management Class. Orange County. Computer Education International. Call: (818)242-0828.

August 11–14 OS/2: Comprehensive Hands-on Intro Course. Los Angeles. Learning Group International. Call: Kim Sisson, 1-800-421-8166.

August 13 DOS/Hard Disk Management Class. Glendale. Computer Education International. Call: (818)242-0828.

AUGUST 8

COMPUTER SHOW

Pomona

Computer Marketplace computer shows feature hundreds of exhibits with thousands of products. Admission is $6 and shows are from 10am to 5pm. Los Angeles County Fairgrounds (Fairplex), Pomona. Call: 1-800-252-7927.

AUGUST 27–29

THE 3RD ANNUAL MACINTOSH SUMMIT CONFERENCE

University of California, Santa Barbara

In a two-day conference with an optional third day of short courses, the Macintosh Summit Conference is designed to enhance the productivity and creativity of Macintosh users in both corporate and individual settings. Presentation topics include: The Next Generation of Spreadsheets, Music Publishing on Macintosh, Networking and Communications, and Interactive Design. Contact: SEM Dept., UCSB Extension, Santa Barbara, CA 93106. (805)893-4143 or 893-3591.

August 14 Intermediate Lotus 1-2-3 Class. Glendale. Computer Education International. Call: (818)242-0828.

August 15 WordPerfect Desktop Publishing Class. Glendale. Computer Education International. Call: (818)242-0828.

August 17–21 SCO Forum92: The International Technical And Marketing Conference. Santa Cruz. The Santa Cruz Operation. Call: 1-800-553-9939.

August 21 MS Word On The PC, Level I Class. Glendale. Computer Education International. Call: (818)242-0828.

August 22 Computer Show & Sale. CSU, Northridge. Richard James Corp. Call: 1-800-433-7469.

August 23 Computer Show & Sale. Glendale Civic Auditorium. Richard James Corp. Call: 1-800-433-7469.

August 25–28 Intro To ISDN Course. Los Angeles. Learning Group International. Call: Kim Sisson, 1-800-421-8166.

COMPUTER TRADE SHOW • WHOLESALE PRICES • OPEN TO THE PUBLIC

COMPUTER MARKETPLACE

"The Traveling Mall That Has It All"

- *Over a hundred companies having price wars with each other to compete for your business.*
- *You can't find this much inventory in a hundred computer stores nor can you get these prices.*
- *There is also a consignment table to sell your computer equipment.*

FREE PRODIGY. w/qualified purchase.

DIRECTIONS

POMONA
L.A. COUNTY FAIRGROUNDS (FAIRPLEX)

Exit Highway 10 at Ganesha/Fairplex Drive. Go North to McKinley and turn right. Then turn left on White Avenue to Gate 14.

BUENA PARK
SEQUOIA CONFERENCE CNTR.

Take the Beach Blvd. Exit off the 91 Freeway and go 1 block North to 7530 Orangethorpe.

RESEDA
SHERMAN SQUARE ENTERTAINMENT CNTR.

From 101 Freeway: take the Reseda off ramp. Turn left (if travelling E.) on to Reseda Blvd. to Sherman Way, turn right, one block, to Canby Street. 18430 Sherman Way.

Computer
— MARKETPLACE —

(408) 778-5200 • 800-800-5600

10 AM to 5 PM **ADMISSION $6**

June 27, 1992 SATURDAY
L.A. Fairgrounds (Fairplex), Pomona

June 28, 1992 SUNDAY
Sherman Square Entertainment Center, Reseda

July 18, 1992 SATURDAY
L.A. Fairgrounds (Fairplex), Pomona

July 19, 1992 SUNDAY
Sherman Square Entertainment Center, Reseda

August 8, 1992 SATURDAY
L.A. Fairgrounds (Fairplex), Pomona

August 9, 1992 SUNDAY
Sherman Square Entertainment Center, Reseda

August 29, 1992 SATURDAY
L.A. Fairgrounds (Fairplex), Pomona

August 30, 1992 SUNDAY
Sequoia Conference Center, Buena Park

SPECIAL 2-DAY SHOW!
October 10 & 11, 1992 SATURDAY & SUNDAY
L.A. Fairgrounds (Fairplex), Pomona

November 7, 1992 SATURDAY
L.A. Fairgrounds (Fairplex), Pomona

November 8, 1992 SUNDAY
Sherman Square Entertainment Center, Reseda

November 28, 1992 SATURDAY
L.A. Fairgrounds (Fairplex), Pomona

ALL SAN DIEGO SHOWS HAVE BEEN CANCELLED

UQM ...

QUALITY THROUGH SERVICE

QUALITY THROUGH AFFORDABILITY

QUALITY CUSTOM CONFIGURATION

PROVEN RELIABILITY
IN SYSTEMS & SUPPORT

NOVELL
GOLD
RESELLER

▲ 4–8 HOURS ON-SITE/OFF-SITE SERVICE AND MAINTENANCE CONTRACTS AVAILABLE
▲ PLEASE CALL FOR 486 50/33 EISA CONFIGURATION & PRICE

386-40 MHz with 64K Cache
$1335

386-33 MHz with 64K Cache
$1285

- 4 MB Memory
- 1.2 MB Floppy Drive
- 1.4 MB Floppy Drive
- 120 MB IDE Harddisk
- MS Windows 3.1
- Serial/Parallel/Game
- 14" Super VGA 1024 x 768 Monitor
- 16-bit VGA Card w/512K
- 101 Enhanced Keyboard
- Mini Tower or Desktop Case with 200 P/S

486-50 MHz with 256K Cache
$2075

486-33 MHz with 64K Cache
$1645

386-25 MHz
$1225

386SX-25 MHz
$1195

486SX-25 MHz
$1375

NOVELL GOLD RESELLER

LANtastic™ Authorized Dealer

LAN PROFESSIONAL
NOVELL CERTIFIED
NE1000, NE2000 and 10Base-T Compatible Ethernet Cards and 12-Ports Concentrator
Dealers Welcome

Novell Labs Tested & Approved

LANtastic v4.1 AI and Novell Lite V 1.0 starter kit: Software for 2PC's

• 8-bit Arcnet Starter Kit	$240
• 16-bit Arcnet Starter Kit	292
• 8-bit Ethernet Starter Kit	336
• 16-bit Ethernet Starter Kit	388

Company Leasing Plans Available

UQM COMPUTER

★ Prices subject to change without notice
★ AT & XT are trademarks of IBM

22395 S. Western Ave., Suite 304, Torrance, CA 90501
(310) 782-1422 FAX (310) 782-1533

Hours:
Mon-Fri 9:30-6:30
Sat 11:00-3:00

UQM Hotline!
1-(800)300-1422
order toll free!

INTERNATIONAL PRODUCTS MANUFACTURER

IPM SYSTEM
SINCE 1984

"We Will Beat/Match ANY Advertised Price!"

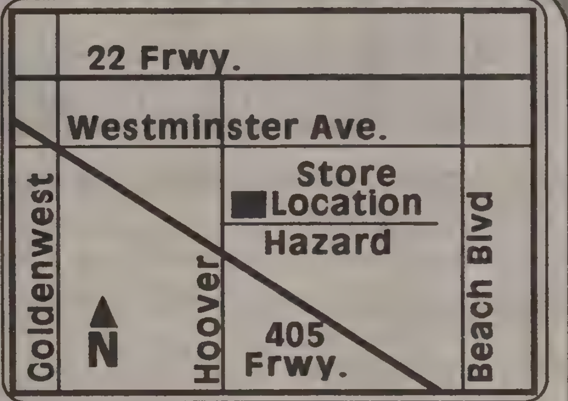
SUPER LOW PRICE!

COMPUTER PRICE WAR

HAS BEEN LAUNCHED BY

KATRONIC TECHNOLOGY

COMPUTER SALES & SERVICES
WE DELIVER ADVANCED TECHNOLOGY
Excellent Quality • Reliable Service
Competitive Prices



"WE WILL CUSTOMIZE ANY SYSTEM TO MEET YOUR SPECIFICATIONS."

IPM 386SX-25MHz $899

- AT Case Desktop/Med. Tower
- MB 386SX w/1 MB RAM
- FDD/HDD Controller IDE
- 40 MB H. Disk IDE
- 1.2 MB Floppy Drive
- AT I/O 2 Serial/1 Parallel/ 1 Game Port
- VGA 16 Bit w/256 KB Video RAM
- 14" VGA Monitor
- 101 Enhanced Keyboard

IPM 286-16MHz $599

MONO SYSTEM:
Case • Power Supply • MB 286-16 w/1MB + 40 MB H. Disk + Monitor

NOTEBOOK SPECIAL

386SX-25 MHz w/2 MB + 80 MB H. Disk **LOWEST PRICE CALL!**

HARD DRIVES • MODEM
MONITORS • PRINTERS
COLORADO DRIVE **CALL**

IPM 386DX/25/33/40MHz

- AT Med. Tower Case w/Digital
- MB 386DX w/1 MB Memory
- FDD/HDD Controller IDE
- 80 MB H. Disk IDE
- 1.2 MB Floppy Drive
- AT I/O 2 Serial/1 Parallel/ 1 Game Port
- VGA 16 Bit w/1 MB Video RAM
- 14" Super VGA Monitor (.28 Dot)
- 101 Enhanced Keyboard

386DX-25 MHz	$1099
386DX-33 MHz w/64K CACHE	$1180
386DX-40 MHz w/128K CACHE	$1195

WE DO NOVELL NETWORKING

LANTASTIC STARTER KIT
• LANSMART • ARCNET
• ETHERNET

CALL

IPM 486DX-33MHz $1699

- AT Full Size Tower Case
- MB 486DX-33 MHz w/256K Cache
- Math Co-Processor Built-In, 2 MB RAM
- IDD/HDD Controller
- 1.2 & 1.4 HD Floppy Drive
- 120 MB H. Disk
- AT I/O
- VGA 16 Bit w/1 MB Video RAM
- 14" Non-interlaced SVGA Monitor
- 101 Enhanced Keyboard

UPGRADE SYSTEM

XT To 286 w/1MB	$129
286 To 386DX-25 MHz w/1MB	$265
286 To 486-33 MHz w/1MB	$610

FREE LABOR!

HEWLETT PACKARD Canon TOSHIBA IBM ATi NEC

MEMORY PRODUCTS UPGRADE FOR COMPUTER
• NOTEBOOK
• LASER PRINTERS

EVEREX EPSON ZEOS DELL COMPUTER CORPORATION RICOH ZENITH

Microsoft COMPAQ Panasonic PACKARD BELL SHARP ALR OKIDATA AST

KATRONIC COMPANY

(714) 897-3234 or (714) 895-2084

FAX: (714) 897-9853
14382 HOOVER ST., SUITE A9,
WESTMINSTER, CA 92683

ONE YEAR
WARRANTY
PARTS &
LABOR

USER GROUP NETWORK

BULLETIN BOARDS

213

AAC-Info Net. (213)294-9729. 8-N-1, 300/1200/2400. New Afro-American news, information, messages, and public forum. Sysop: Selmo Belisle. [Exp. #98.]

Ifinite Diversity Infinite Combination: The BBS. (213)296-6755. 10 pm–6 am, 300/1200/2400. This board is for writers, artists, and Star Trek clubs. Sponsored by Infinite Savant Publishing and Sundance Writers' Guild. [Exp. #98.]

La Mirada's The Modems Delight BBS. (213)944-1221. 24 hrs., 300/1200/2400/9600. Multi-interest files, doors, games, and fun. Running Telegrad BBS v2.7, BlueWave Echo-mail, 1:102/430 Fidonet. Sysop: Ronald Dishon. [Exp. #99.]

LAAUGLine. (213)387-1002. 24 hrs., 300/1200/2400. Amiga. Sysop: Thom Irwin. [Exp. #99.]

Lynzie's Motherboard. (213)848-2700. 8-N-1, 24 hrs., 300/1200/2400. 32 lines, multiuser/group & private chats, 2GB, email, public forums, library, and matching. More local numbers available online. Sysop: Lynzie Flynn. [Exp. #98.]

Megabytes BBS. (213)221-6379. 8-N-1, 24 hrs., 300/1200/2400. IWindows shareware and DOS utilities. Free. Sysop: William Rivas. [Exp. #98.]

Modem Butterfly's Connection. (213)264-6900. 8-N-1. Chatting, pontificating, parties, 800MB. [Exp. #99.]

Original Apple Corps BBS. (213)454-4660. 300/1200/2400. Apple II support. Free. Sysop: Sheila Dowst. [Exp. #99.]

UFPSS Friendship BBS. (213)936-1432. 10 pm–8 am, 300/1200/2400. For writers, artists, RPGers, and ST/Sci-Fi fans. Part of the IDIC-Net. [Exp. #100.]

UFPSS Friendship BBS. (213)936-1432. 10 pm–8 m, 300/1200/2400. For writers, artists, RPGers, and ST/Sci-Fi fans. Part of the IDIC-Net. [Exp. #100.]

310

AmigaSerV BBS. (310)983-1600. 24 hrs., 1200/2400/9600. Amiga only! 670MB, 4-line rotary, 4200+ files, C-Net. Sysop: Ed Brown. [Exp. #98.]

Citizen America BBS. (310)453-7564. 8-N-1, 24 hrs., 300/1200/2400. Support for Citizen printers and computers. Sysop: Citizen America. [Exp. #98.]

Compu-Net! BBS. (310)823-3609. 300/1200/2400/9600. 1GB, 15 separate systems in one call. Adult, finance, sports, Windows, occult, IBM, and more. [Exp. #100.]

Drug Abuse Information (DIAMP). (310)825-3736. 8-N-1, 24 hrs., 300/1200/2400. Drug information, statistics, bibliographies, forums, email, downloads, and uploads. Free membership, reg. requested. Sysop: Greg Cason. [Exp. #98.]

Guilded Globes. (310)594-8323. 8-N-1, 300/1200/2400. AD & D, WWIVnet, debates, online games, active users, many msg subs. Free reg. Sysop: Physicist. [Exp. #100.]

Hatch.uucp. (310)822-3970. 1200/2400/9600. Usenet feeds, 1200 Newsgroups, worldwide internet email, domain addresses avail. Sysop: Mike Barnadett. [Exp. #98.]

Illusions BBS. (310)804-3324. 24 hrs., 1200/2400/9600. Nationwide network support, large file area, QWK, mail, and more. Sysop: Jim Walton. [Exp. #98.]

KBBS Los Angeles. (310)558-0145, 532-1700. 8-N-1, 300/1200/2400/9600. LA's busiest, with 32,000 channel chat, 13,000+ files, 32 lines, parties, over 3000 members. [Exp. #99.]

Kluged—The Anarchist's BBS. (310)432-5305. 8-N-1, 24 hrs., 300/1200/2400. Open to anything. Shareware, games, programs, graphics, and message base. Free. Sysop: Martin. [Exp. #98.]

LA Computer Society BBS. (310)475-8720. 8-N-1, 24 hrs., 2400 only. Full access to Computer Society members ($36/yr), message bases, SIGs, and club information. Sysop: Debbie Rhodes. [Exp. #98.]

LAMG (Los Angeles Macintosh Group). (310)559-MACS. 8-N-1, 24 hrs, 300/1200/2400/9600. So. Cal's busiest all Mac multiline BBS. 300MB+ of Mac nes, reviews, rumors, and more. [Exp. # 99.]

Network BBS. (310)968-0154. 8-N-1, 300/1200/2400. Forums, polls email, and chat. Sysop: Ken Summerville. [Exp. #100]

NightLine BBS. (310)419-4757. 8-N-1, 24 hrs., MS/PC-DOS and compatibles. GIFs, utils, Windows, etc. Free. Sysop: Lee Culver [Exp. #99.]

Original Apple Corps BBS. (310)454-4660. 300/1200/2400. Apple II support. Free. Sysop: Sheila Dowst. [Exp. #99.]

Postergirls Swinger's Alternate Lifesytles BBS. (310)521-0171. 300/1200/2400. Multi-node, worldwide mail, messages on over 300 sub., 1.2GB. Free. Sysop: Haulin' Ass Chick. [Exp. #98.]

Servant BBS. (310)371-2770. 1200/2400/9600/14,400. A Christian BBS for Mac and DOS. Extensive transfers. [Exp. #98.]

South Bay Commodore Users Group (SBCUG). (310)643-8818. 24 hrs., 300/1200/2400. Graphics and library. Sysop: Jeffery Baldwin. [Exp. #100.]

The Computer Handyman's BBS. (310)693-7907. 8-N-1, 300/1200/2400, 24 hrs. 12 Steps, BASIC programming, tech tips. Sysop: Alan Selmanaj. [Exp. #98.]

The Connection BBS. (310)793-0994. 24 hrs., 300/1200/2400. Msg bases, PD files, QB and VB Programmers, Novell topics, and more. [Exp. #100.]

The Forbidden Zone. (310)929-4460. 24 hrs., 300–16,800. 20MB PD transfers, games, taboo msg. base, fees optional. Sysop: Beltair [Exp. #99.]

The Great CHR$(27). (310)693-7907. 24 hrs., 1200/2400. 12 Steps, BASIC Programming, C, TECH Talk. No fees. [Exp. #100.]

The Original Off-Broadway BBS. (310)453-7038. 8-N-1, 24 hrs., 300/1200/2400/9600. Non-subscription, text files/messages only. Using MajorBBS software and CompuCom Speedmodem. Sysop: James Gossage. [Exp. #98.]

619

Satang BBS. (619)364-0033. 8-N-1, 24 hrs., 300/1200/2400. 170MB online, Wildcat! IBM files & programs, religion and metaphysics. Sysop: Ed Shimko. [Exp. #100.]

714

Commodore Automated Terminal BBS. (714)979-8333. 24 hrs., 1200/2400. C64/128 help, private mail, email, online games. [Exp. #98.]

Diaspar Virtual Reality Network. (714)831-9101 (2400), 362-9995 (9600). Home EduTainment Center, 20+ lines, experience virtual reality. Sysop: David Mitchell. [Exp. #100.]

Divine Intervention. (714)895-8585. 2400. Online games, interesting messages, useful files, and great sysops. Free. [Exp. #98.]

Easy Street. (714)590-4307, 778-5473. 8-N-1, 24 hrs., 300/1200/2400/9600. 20,000+ files, adult fun, 42 lines w/local access throughout Orange County. [Exp. #100.]

EcTech BBS. (714)780-5175. 24 hrs., 1200/2400/9600. Ten nodes, 4GB, GIFs, programs, music, adult, Windows. Relay net mail. Free. Sysop: Jim Pierce. [Exp. #98.]

Infinity BBS. (714)379-1335. 16 lines, one GIF file library, teleconference, games, email, and current satellite weather pics. Sysop: Eric Robitaille [Exp. #99.]

Lynzie's Motherboard. (714)776-4198. 8-N-1, 24 hrs., 300/1200/2400. 32 lines, multiuser/group & private chats, 2GB, email, public forums, library, and matching. More local numbers available online. Sysop: Lynzie Flynn. [Exp. #98.]

Magictek Computers. (714)939-9219. 8-N-1, 2400–19,200. Tech support programs and msg. board, updated software drivers, specials of the month online, largest shareware programs. [Exp. #99.]

Midnight Mission BBS. (714)848-6808. 24 hrs., 300–14,400. Large game and GIF file areas. Full access with call back. Sysop: Marty Strech. [Exp. #98.]

Music Insider BBS. (714)992-2721. 24 hrs., 1200/2400. For the pro: songwriter, musician, MIDI user, and player. Electronic "tip sheet," w/40+ major recording artists currently looking for material. Sysop: Douglas Boughter. [Exp. #100.]

Online Exchange. (714)870-4614. 2400–14,400. Shareware, large adult GIF file area, games, 16MB online. Sysop: Bob Aune. [Exp. #100.]

PC-Applications BBS. (714)432-9104, 557-8351, 557-6688. 24 hrs., 1200–14,400. Online games, email, echo mail, over 15,000 files to download. Full access on first call with call back verifier. Sysop: Dave Robinson. [Exp. #99.]

Perot Petition BBS. (714)255-0495. 8-N-1, 300/1200/2400. Info. on Perot presidential candidacy. Sysop: Ian Board. [Exp. #98.]

Perot Posse BBS. (714)962-1857. 9600. Supports Perot Campaign with files, msgs. Free. [Exp. #100.]

Pleasure Island Chateau. (714)952-8910. 24 hrs. Three nodes, 6000+ files, 1000+ members. Adult, 1.3GB online. [Exp. #98.]

Software Gallery BBS. (714)991-4019. 7 am–10 pm. 1200/2400/9600/14,400. Games, graphics, email, utils, adult. Free. Sysop: Joe Engebretson. [Exp. #98.]

Systems Support Group BBS. (714)631-6740. 24 hrs., 1200/2400/9600. Programmers, power users, NetMail, and shareware. 1.2GB online, no fee. Sysop: Joe Winlock. [Exp. #99.]

Trixie's Doghouse. (714)499-0822. 8-N-1, 11 pm–7 am, 300/1200/2400. Specializing in topics related to pets. Full access with callback. Sysop: Jason MacDonald. [Exp. #100.]

WinSIG BBS. (714)363-9802. 24 hrs., Windows 3.xx shareware. Sysop: Firas Bushnaq. [Exp. #100.]

805

Farpoint BBS. (805)582-1621. 8-N-1, 24 hrs., 1200/2400/9600/14,400. IBM shareware, adult files & GIFs, NETMail, online games, 700+MB. Free after reg. Sysop: Gary Bisner. [Exp. #98.]

Amateur Action BBS
World's Largest Collection of Amateur Adult GIF Files. New Member Bonus!! Receive a FREE Amateur Video!!
VISA MasterCard
(408) 263-3393
8 Lines
US Robotics Dual Standard Modem 1200/2400/9600 V.32/14400 HST

GARLIQUE GRAPHICS
WORLD FAMOUS GIF'S
ADULT CD'S
FREE CATALOGS
SUBSCRIBE ON-LINE
VISA AMEX
408-847-0665

Music BBS
24 Hours a Day
818-789-4287

Windows Online
Get the Windows utilities you need today by modem! We have over 14,000 public domain Windows and DOS programs and utilities.
- 13 Phone lines. No busy signals.
- Home of "the Weekly", the graphical on-line magazine with the latest Windows tips.
- Over 50 hot new files every day!
- USR-DS & CompuCom modems
CALL TODAY FOR YOUR FREE PREVIEW!
(510) 736-8343 Modem

DIASPAR VIRTUAL REALITY NETWORK
■ 22 Lines, Talk (Chat), Email, Conferences, User Rented BBSs, More
■ Self Publishing of Graphics, Sound, Software, Prose, Poetry and Books
■ Science Fiction Books Available for Sale by Download from Baen Books
■ Customer Support Network for Virtual Reality Laboratories, Inc.
■ FREE Telecomm Software for Use with Diaspar—Chat and Download at Once
■ Information Available Without Subscribing and 30 Day Free Trail Period
■ 2400 Baud: 714/831-9101
■ Voice Information: 714/831-1776
■ 9600 Baud (V32/V42): 714/362-9995

Continued

NOTEBOOK COMPUTER SALE!

Notebook Computers

AST®

Exec 386SX-20, 40/60MB	CALL
Exec 386SX-25, 60/80MB	CALL
Exec 386SX-25 Color	CALL

COMPAQ

LTE-Lite 386SL/25MHz, 60MB	CALL
LTE-Lite 386SL/25MHz, 80MB	CALL

Macintosh®

PowerBook, 140, 2/40	CALL
PowerBook, 170, 4/40	CALL

TEXAS INSTRUMENTS

TM2000, 20/40MB	CALL
TM3000, 40/60MB	CALL

TOSHIBA

T2000SX, 40/60MB	CALL
T2000SXe, 40/60MB	CALL
T2200SX, 40/60MB	CALL
T4400, 80MB, LCD/Plasma/Color	CALL
T5200, 100MB Laptop 2/2 slots	$2850

THE MOST POWERFUL NOTEBOOK ON THE MARKET TODAY!

ENTERPRISE

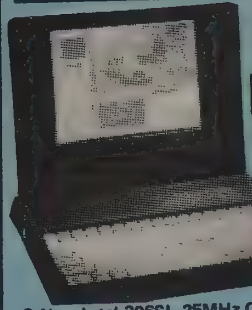
486DX-33MHz w/8K Cache!!!

Is this what you have been waiting for? A true 32-bit notebook machine with cache memory? This is it! A real power house in a notebook package - only 10"D x 11"W x 2¼"H. and weighs only 9-lbs. with quick-charge (2 hr.) battery.

- 486DX-33MHz or 386DX-33MHz CPU
- 4MB RAM, expandable to 16MB
- 8K Cache (486DX), 32K Cache (386DX)
- Hi Res. LCD VGA screen
- numeric keypad included
- 2 serial, parallel, ext. VGA, ext. keyboard
- Optional Docking Station holds 2 16-bit cards
- FREE MS DOS 5.0 & Window 3.1
- 1.44-MB floppy drive included

	80MB	120MB	200MB
486DX	$2275	$2395	$2595
386DX	$1875	$1995	$2195

1 year parts & labor warranty



Our NEWEST Notebook

386SL-25Mhz Notebook

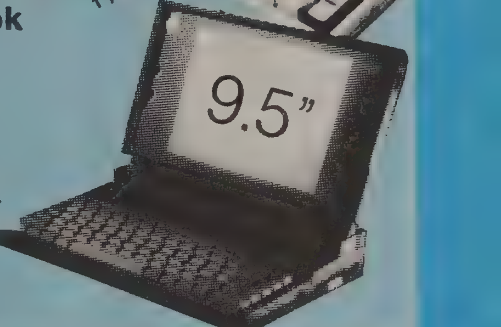
- New Intel 386SL-25MHz CPU
- Big 10" Backlit LCD screen w/800x600 resolution,
- 64 grey scale
- 4MB RAM
- Simutaneous LCD & external monitor display
- Removable hard disk
- Size: 11.5x8.7x2.1". Wt. 6.8 lb.
- FREE MS DOS 5.0 & Window 3.1
- Internal FAX/Modem option
- Expansion chassis option
- 1 year parts & labor warranty
- 1.44-MB floppy drive included

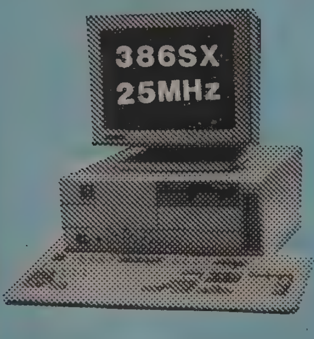
80MB **$1995** 120MB **$2195**

Big Screen 25MHz Notebook

- New Intel 386SL or AMD 386SXL CPU
- 9½" screen, 25% more viewing area,
- 640x480 VGA LCD display w/64 grey scale
- 2MB RAM, expandable to 8MB
- Dual battery packs last twice as long
- Serial, parallel, VGA, and keyboard ports
- Size 12" x 9½" x 2". Wt. 7.7 lb.
- Option Packs: FAX/modem, Ethernet, Modem, IBM 3270 Emulation, FAX/Scanner, Car adapter
- FREE MS DOS 5.0 & Window 3.1
- 1 year parts & labor warranty
- 1.44-MB floppy drive included

60MB	80MB	120MB
$1550	$1650	$1775





386SX SYSTEM w/40MB

- Intel 386SX-25MHz CPU
- 40MB IDE hard disk
- 1.2MB & 1.44MB drives
- 1MB RAM, expandable to 8MB
- Super VGA color monitor, .28mm dot, 1024x768 resolution
- Fujitsu 101-key enhanced keyboard
- 16-bit VGA card w/1MB RAM
- 1:1 hard/floppy controller
- I/O: 2 serial/1parallel/1 game
- 1 year parts & labor warranty
- 30-day money-back guarantee

$1050

386-25Mhz SYSTEM w/120MB

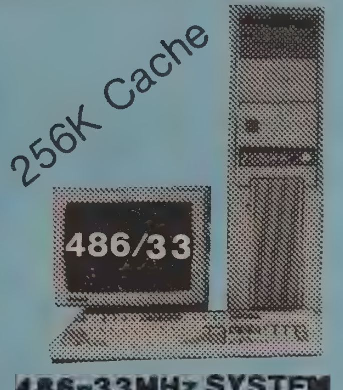
- Intel 386DX-25MHz CPU
- 120MB 19ms IDE hard disk
- 1.2MB & 1.44MB drives
- 1MB RAM, expandable to 8MB
- Super VGA color monitor, .28mm dot, 1024x768 resolution
- Fujitsu 101-key enhanced keyboard
- 16-bit VGA card w/1MB RAM
- 1:1 hard)floppy controller
- I/O: 2 serial/1parallel/1 game
- 1 year parts & labor warranty
- 30-day money-back guarantee

$1295

386-33MHz SYSTEM w/120MB

- Intel 386DX-33MHz CPU
- 64K high speed Cache memory
- 4MB RAM, expandable to 16MB
- 1.2MB & 1.44MB Teac drives
- Super VGA color monitor, .28mm dot, 1024x768 resolution
- 16-bit VGA card w/1MB RAM
- 1:1 hard/floppy controller
- I/O: 2 serial/1 parallel/1 game
- Fujitsu 101-key enhanced keyboard
- 1 year parts & labor warranty
- 30-day money-back guarantee

$1350 40MHz **$1395**



486-33MHz SYSTEM w/120MB

- Intel 486DX-33MHz CPU
- 256K high speed Cache memory
- 4MB RAM, expandable to 32MB
- 1.2MB & 1.44MB Teac drives
- Super VGA color monitor, .28mm dot, 1024x768 resolution
- 16-bit VGA card w/1MB RAM
- 1:1 hard/floppy controller
- I/O: 2 serial/1 parallel/1 game
- Fujitsu 101-key enhanced keyboard
- 1 year parts & labor warranty
- 30-day money-back guarantee

$1695

256K Cache
486/50

486-50MHz SYSTEM W/120MB

- Intel 486DX-50MHz CPU
- 256K high speed Cache memory
- 4MB RAM, expandable to 32MB
- 1.2MB & 1.44MB Teac drives
- Super VGA color monitor, .28mm dot, 1024x768 resolution
- 16-bit VGA card w/1MB RAM
- 1:1 hard/floppy controller
- I/O: 2 serial/1parallel/ 1 game
- Fujitsu 101-key enhanced keyboard
- 1 year parts & labor warranty
- 30-day money-back guarantee

$1995

FREE MS DOS 5.0 OR Window 3.1 w/Mouse OR Modem w/above System

MONITORS

Aamazing 12" amber monitor	$79
Aamazing 14" amber (flat)	$105
Aamazing 14" VGA 1024, .39	$239
Aamazing 14" VGA 1024, .28	$289
Everview 14" VGA 1024, .28	$289
ViewSonic V1 VGA, 640 .39	$239
ViewSonic V4 VGA 1024, .28	$315
ViewSonic 5E, 14" VGA .28	$399
ViewSonic V5+, 14" VGA .25	$525
ViewSonic V6 VGA 1024 .28	$369
ViewSonic V7, 17" VGA	$1095
Sony 1304 VGA 1024 .25mm.	$595
Sony 1604 17" .25	$1075
NEC 3FGX	$695
NEC 4FG	$795
NEC 5FGX, 17" Multisync	$1595
Seiko 1440 14" VGA.	$475
Seiko 1450 non-interlaced	$639

DRIVES

Teac 1.2MB floppy drive	$63
Teac 1.44MB floppy drive	$59
1" 1.2MB drive for Compaq	$139
Canon 1.2/1.4 dual media drive	$195
Conner 40MB IDE hard disk	CALL
Conner 80MB IDE hard disk	CALL
Conner 120MB IDE hard disk	CALL
Conner 200MB IDE hard disk	CALL
Fujitsu 500MB IDE Hard disk	CALL
Seagate 351 40MB IDE hard dis	CALL
Maxtor 130MB IDE hard disk	CALL
Maxtor 340MB IDE hard disk	CALL
Micropolis 676MB ESDI HD.	CALL
Maxtor 360MB ESDI hard disk	$1275
Maxtor 600MB ESDI hard disk	$1675
IDE 1:l controller card	$19
IDE 1:1 controller with I/O	$25
Everex 120MB Tape Back-up	$229
Colorado Tape Back-Up, 120MB	$199
Colorado Tape Back-Up, 250MB	$269

PRINTERS

H-P LaserJet IIP+/IIIP+	CALL
H-P LaserJet III	CALL
H-P LaserJet IIID	CALL
Brother HL-10V Laser Printer, 10-PPM, H-P III compatible, 1MB RAM, 35 fonts PCL-5	$1,175
Citizen 200GX	$165
Citizen GSX-140+.	$305
Epson LX-810.	$175
Epson FX-850/FX1050	$329/$429
Epson LQ-570/1010	$315/$419
Epson LQ-870/1170	$489/$629
Epson LQ-2550	$885
Okidata 320/321	$330 $435
Okidata 390/391	$430/$599
Okidata 393	$950
Okidata OL400, 4ppm.	$595
Panasonic 1180, 192cps,	$169
Panasonic 1124i	$289
Panasonic 2624, 300cps	$449

CD/ROM

Your computer system without CD/ROM is like a Hi-Fi system without a CD player! Now with our low prices you can make your system complete.

Pinnacle CD/ROM . w/World Atlas $299

Internal unit fits 5¼" slot in you PC AT, XT. Complete with I/F card, cable and setup software. Has audio output to play back musical CD's. W/Encyclopadia, World Atlas & Game Paks . . . $399.

SONY CD/ROM Bundle . $479

Internal drive with AT bus I/F card and cable. 380ms seek time. Unit bundled with illustrated encyclopedia, World Atlas & Came Pak.

ENTERPRISE COMPUTERS, INC.

6001 BANDINI BLVD., LOS ANGELES, CA 90040
Info: 213-725-3080 FAX: 213-725-6689

HOURS:
Mon.-Fri. 8:30-5:00

Prices & availability are subject to change without notice.

BULLETIN BOARDS

Lynzie's Motherboard. (805)482-5776. 8-N-1, 24 hrs., 300/1200/2400. 32 lines, multiuser/group & private chats, 2GB, email, public forums, library, and matching. More local numbers available online. Sysop: Lynzie Flynn. [Exp. #98.]

Revelation BBS. (805)296-1218. 24 hrs., 1200–38,400. No fees. Sysop: Justin Case. [Exp. #98.]

818

African American BBS! (818)793-9155. P-Funk online, sports, issues, health, business. Check it out. Free. Sysop: Jeffery Mitchell. [Exp. #100.]

Americom. (818)967-3108. 8-N-1, 10 pm–8 am, 300/1200/2400. Laserdisc! Video, photo, file prod., HAM, SWL, Scan. An Arts/Communications BBS. [Exp. #100.]

Asia America Electronic Bulletin Board Service. (818)284-4519. Specializing in bridging the gap between Asian and American cultures, with a focus on business. [Exp. #99.]

AutoComp BBS. (818)982-8671. 24 hrs., 300/1200/2400. Automobile classifieds. Free access. Sysop: J. Macoy. [Exp. #99.]

Direct Marketing Connection. (818)785-3914. 8-N-1, 2400. Free classified ads for the direct marketing industry. Sysop: Gene Mallory. [Exp. #98.]

FreeLink BBS. (818)713-1767, 713-8212. 300–38,400. Over 600MB plus CD-ROM, low-cal version avail. Modems are standing by to get your call. [Exp. #98.]

Hottips BBS, Glendale. (818)248-3088. 1200–14,400. Five lines, 6000+ files, 1000+ users, 760MB online, QWK mail door, professional emphasis. RIME Network. Sysop: Michael D. Callaghan. [Exp. #98.]

InvestorLink. (818)960-9362. 24 hrs., 2400. Financial stocks, Real Estate, Mutual Funds, daily updates. Free. Sysop: Steve Painter. [Exp. #99.]

KBBS Los Angeles. (818)989-3875. 8-N-1, 300/1200/2400/9600. LA's busiest, with 32,000 channel chat, 13,000+ files, 32 lines, parties, over 3000 members. [Exp. #99.]

Lynzie's Motherboard. (818)989-3875. 8-N-1, 24 hrs., 300/1200/2400. 32 lines, multiuser/group & private chats, 2GB, email, public forums, library, and matching. More local numbers available online. Sysop: Lynzie Flynn. [Exp. #98.]

Panasia BBS. (818)240-0415. 1200–14,400. Glendale, QWK/REP, Intelac RegHub, no fees. [Exp. #98.]

Prime Time BBS. (818)982-7271. Multiplayer online games, large library, local numbers online. Sysop: Bill Martin. [Exp. #98.]

Southland Matchmaker. (818)793-9108. Pen-pal system, multilines, chat, games. Enter "mm" at login prompt. [Exp. #100

The Drawing Board. (818)965-6241. 8-N-1, 24 hrs., 1200/2400/9600. DTP, graphics, messages, and PD file sections. Sysop: Char Rice. [Exp. #99.]

Tin Shack BBS. (818)992-3321. Over 1GB of free downloads, immediate access, multiline. Sysop: Guy Nohrenberg. [Exp. #98.]

Tri-City Apple BBS. (818)288-6540. 8-N-1, 24 hrs., 2400. Mostly Apple II, email, PD, UL/DL. [Exp. #99.]

916

Video ViSion BBS. (916)682-1655. 24 hrs., 300/1200/2400/9600. Games, graphics, Windows & source code. 360MB. Sysop: Roel Sarceno. [Exp. #98.]

ASSOCIATIONS

Black Data Processing Assoc., LA Chapter. Meetings: 4th Tues., 6pm, ULTC, 7226 S. Figueroa St., Los Angeles. Call: (310)673-6522 or 1-800-727-BDPA. [Exp. #99.]

Data Processing Management Association. Meetings: 2nd Thurs., 7pm. An organization composed of all levels of management personnel who have an interest in the field of information processing. Call: (310)549-9680 or (213)225-9210. [Exp. #102.]

Independent Computer Consultants Association, Los Angeles Chapter. Meetings: 1st Thurs., 6pm. Prepaid reservation, $25, or at the door, $35. The LA chapter provides referral services. Call: (213)872-1811. [Exp. #101.]

Microcomputer Managers Association, Los Angeles Chapter. A forum for the discussion of issues relating to implementing and supporting microcomputer technology. Call: (213)243-6843. [Exp. #100.]

Orange County Association Of PICK Professionals. Meetings: 3rd Wed., 6pm, Claim Jumper Restaurant, 18350 Brookhurst St., Fountain Valley. Dinner: Members, $20; nonmembers, $25. Without reservations add $5 additional. Call: (714)641-6347. [Exp. #102.]

The Software Council Of Southern California (SCSC). Meetings: Last Wed., 6pm, Long Beach Airport Marriott, 4700 Airport Plaza Dr., Long Beach. SCSC was founded to further the interests of software development organizations, as well as companies that provide support and services to the local software industry. Call: (310)328-0043. [Exp. #102.]

USER GROUPS

ACCOUNTING

L.A. County Cougar Mountain Accounting Software User Group. Call: (818)788-2627. [Exp. #101.]

AMIGA

LAAUG—Los Angeles Amiga User Group. Meetings: 3rd Wed., 7pm, Veteran's Memorial Auditorium, Overland Ave. & Culver Blvd. Many SIGs, rookies, monthly PD disks. Call: Kip Hammond, (310)390-3010. [Exp. #102.]

San Fernando Valley Amiga User Group. Meetings: 2nd Tues., 7:00 pm, Meeting Room, Fallbrook Mall. Call: Tony, (818)985-0476. [Exp. #103.]

SBAD—South Bay Amiga Dudes/Dudettes. Meetings: 1st Thurs., 7 pm, South Bay Contemporary Museum of Art, Torrance. Call: Gordon Barbay, (310)376-7329. [Exp. #101.]

South Orange Commodore Klub—SOCK. Meetings: 3rd Sat., 9am, Computer Guild, Suite 1003, 24001 Via Fabricante, Mission Viejo. New Location. Supports Commodore and Amiga, new users SIG. Call: Don, (714)830-2430. [Exp. #102.]

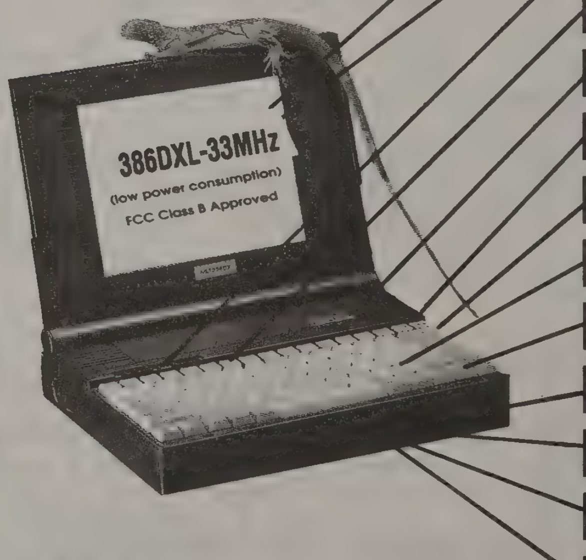
APPLE

Orange Apple Computer Club. Meetings: 1st Sat., 9am, Orange Coast College, Chemistry Lab. Apple II supported. Call: (714)731-9243. [Exp. #99.]

Original Apple Corps, Apple II User Group. Meetings: 2nd Sun. Support for beginners through experts. Write: PO Box 90065, Los Angeles, CA 90009. Call: Fred Duffy, (310)475-8400. BBS:

QUALITY, SERVICE, SAVINGS... DIRECTLY FROM MANUFACTURER

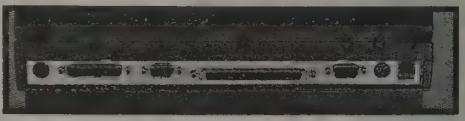
$2,595.00 only



- VGA 640 x 480 supertwist up to 64 shades
- Large, bright 10" diagonal screen
- Easy control on brightness & contrast
- Seperated 12 function keys
- 128K cache built-in
- 4MB RAM (exp. to 8MB)
- NiCad battery (up to 3 hrs.)
- Full function standard 82 key keyboard
- L-shape cursor control keys
- 80MB HDD 19ms (40, 60, 130 opt.)
- Weight 6lb. (w/ battery 7lb.)
- 3 way power saving (sleep mode)
- 1.44MB 3 1/2" floppy drive

FREE Bonus Pack ($899.00 Retail)

- Internal Fax/Modem 9600/2400 Baud (S/R) w/ software
- Internal Scanner Adaptor Card
- MS-DOS 5.0
- Deluxe leather carrying case
- Time contact management software & more
- 30 Days money back Guarantee
- 1 Year full warranty parts & labor



1. 101 Enhanced keyboard/keypad port
2. Parallel (external floppy drive)
3. External VGA port built-in
4. 100Pin Expansion chasis interface
5. Serial Port
6. Hand Scanner Interface
7. Internal Fax/Modem 9600/2400 Baud (S/R)

CALL:
800-882-6735

C.O.D. VISA MasterCard

AMERICAN RELIANCE INC.
5601 N. Rosemead Blvd, Temple City, CA91780
FAX: (818) 575-0801
Monday thru Friday 8:00 a.m. to 5:30 p.m.

PC HOUSE

• MANAGER'S SPECIAL •
(at PC House Torrance)

$828 COMPLETE 386SX-16 VGA SYSTEM

$1270 486SX-25 80MB HD Q1450 SVGA

Authorized Panasonic

Panasonic Office Automation

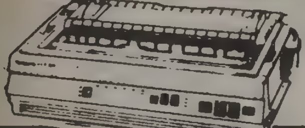
Panasonic Dot Matrix Printers

KX-P1180
9 PIN, 192 CPS
SALE

Panasonic KX-P1124I
- 24 PIN, 80 Column
- 300 CPS in Draft
- 100 CPS in NLQ
- 2 Year Warranty

$279

- Panasonic Color Printer KX-P2180 .... $179
- Panasonic Quiet Printer KS-P2624 .... $399



KX-P1123
24 PIN, 240 CPS
SALE

We Beat Any Superstore Price

LASER PARTNER
QMAIL

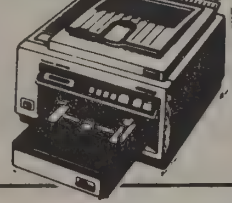
Panasonic Laser Printers

- 5 Pages/min
- 28 Internal Fonts
- 300 dpi Resolution
- HP IIP Emulation
- 512k RAM Standard
- 200 Sheet Multi-purpose cassette

LASER SALE KX-P4410

FREE Switch Box
Easy to Switch between your Dot Matrix Printer and Laser Printer.

W/any Purchase of PANASONIC LASER



PANASONIC COLOR VGA MONITORS

C1381 PanaSync
$429
w/Free 1024x768 SVGA Card

C1381 PanaSync®
- 14" Screen; 0.28mm dot pitch
- 30-37 KHz Scan frequency
- 1024x768 Super VGA resolution

C1395 PanaSync®
- 14" Screen: 0.28mm dot pitch
- 30-57 KHz Scan frequency
- 1024x768 Non-Interlace Resolution

C1395 PanaSync
$539
w/Free Non-Interlace SVGA Card

Service & Support Panasonic products

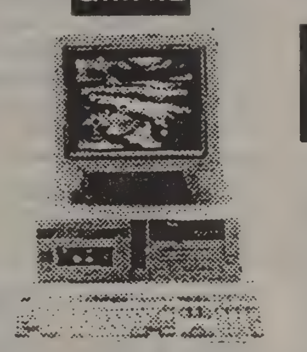
Authorized Micro Q

MICRO Q PERSONAL COMPUTERS

QMAIL

25 MHZ 386SX-VGA

$922
2MB RAM, 1.2 &



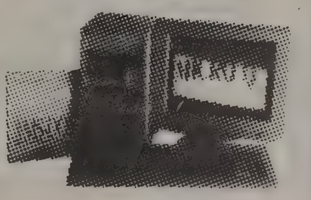
- 2BM RAM, 1.2M & 1.4MB Floppy Drives
- 42 MB Hard Disk, 101 Keyboard & IO
- 640x480 VGA Card & Q1415 VGA Monitor
- Free "DOS Help" & "Qmail" mailing software

- **Best Price You Can Find In L.A.**

FASTEST 40MHz 386DX Super VGA

FREE QMAIL

FASTEST 40MHZ



$1250
You Buy fastest 386DX Machine

Window 3.1 Upgrade
$39 Only

- 4MB RAM, 1.2MB & 1.4MB Floppy Drive
- 130MB Hard Disk
- 1024X768 SVGA
- 101 Keyboard & 1/0 Card & Q1450 SVGA Monitor

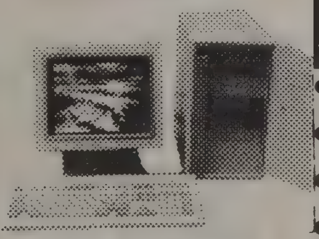
- **Free "DOS Help" & "Qmail" Software**
- **Free Microsoft DOS 5.0**

FASTEST 50 MHz 486 DX2 Super VGA

FREE QMAIL

FASTEST 50MHZ

$1987
You Buy Latest 486 Technology

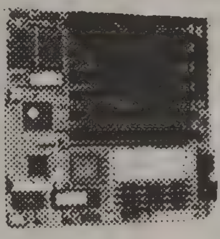


- 4MB RAM, 1.2MB & 1.4M Floppy Drives
- 130MB Hard Disk, 101 Keyboard & IO
- 1024x768 Super VGA Card & Monitor
- SVGA Monitor included Q1480

- **Free "DOS Help" & Qmail Software**
- **Free Microsoft DOS 5.0**
- **Best machine you can find at this price**

Authorized Micro Q

MICRO Q 386 SX-25 CPU Board



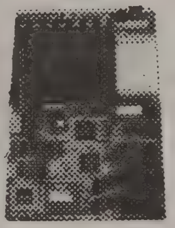
- 25MHz Speed
- Zero Wait State
- AMI BIOS
- Run 32 bit Software
- 30 Times Faster than IBM PC

$205
With 2MB Memory
Update Your Computer

We are Using Advanced Micro Devices 25MHz AMD386SX CPU

- **We Upgrade & Service Your Old Machines**

Micro Q 386-DX-4 CPU BOARD



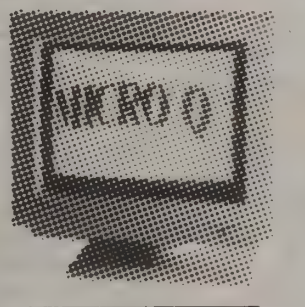
- 25 MHz Speed
- Zero Wait State
- AMI BIOS
- 4MB Memory
- 60 Times Faster than IBM PC.

$405
with 4 MB Memory
New Technology

We are using Intel 486SX-25MHz CPU

- **Call for Quotation & Make a Reservation**

Micro Q VGA Color Monitor



$195
Q1415 VGA
(0.42mmDPT)

VGA Adapter $49

$245
Q1450 SVGA 1024X768
(0.39mm DPT)

SVGA Adapter $79

$315
Q1480 Non-Interlace Super VGA Monitor

$275
Q1460 SVGA 1024X768
(0.28mmDPT)

PC HOUSE • Anaheim
112 E. Orangethorpe Bl. • (714) 525-8507
3 Blks. East Harbor Blvd.

PC HOUSE • Huntington Beach
Huntington Beach • (714) 851-7791
COMING SOON

PC HOUSE • Torrance
22805 Hawthorne Bl. • (310) 373-2687
1 block South of Sepulveda

PC HOUSE • Carson
841 E. Artesia Blvd. • (310) 324-7780
Fwy. 91 - Central Exit

PC HOUSE • Pasadena
1671 E. Colorado Bl. • (818) 568-8585
Across from Pasadena City College

PC HOUSE • Van Nuys
5522 Van Nuys Bl. • (818) 781-9615
1 mile North of Fwy. 101

PC HOUSE • San Diego
7240 Clairemont Mesa Blvd (619) 571-5698
Clairemont Mesa & Fwy 805

PC HOUSE • Riverside
3860 Tyler Street • (714) 688-9505
In Tyler Shop. Cntr. by Egghead

PC HOUSE • Upland
130 S. Mountain Ave./M • (714) 982-2501
Corner Mountain & 8th Street

PC HOUSE • Irvine
16525-3G Von Karman • (714) 851-7791
Corner Von Karman & Barranca

PC HOUSE • Santa Monica
11555 Olympic Blvd. • (310) 478-4136
4 Blocks West of 405 Fwy.

PC HOUSE • Woodland Hills
20051 Ventura Blvd. #B • (818) 888-3011
Corner Winnetka & Ventura

DC 486DX-50MHz & 486DX-33MHz 256K Cache with Local Bus System

DC 386DX-40MHz 64K Cache System

DC 386SX-25MHz 1MB System

DC 486DX-33MHz 256K Cache SYSTEM

- Intel 80486DX-33MHz Processor
- 256K Cache Memory
- 4MB RAM installed Exp. to 32MB
- Two LOCAL BUS expansion slots
- Middle Tower case with 230 watt power supply
- 1.2MB & 1.4MB TEAC Floppy Drives
- 130MB MAXTOR Hard Drive 15ms
- 1:1 Dual FD/HD Controller card
- 2 Serial, 1 Parallel, 1 Game Port
- Trident Super VGA card w/1MB
- 1024x768 SVGA color Monitor .28 dot pitch
- 101 Enhanced Keyboard
- Hi-Resolution Mouse

$1495

DC 486-50MHz DX/2 SYSTEM

- Intel 486-50MHz DX/2 Processor
- 256K Cache Memory
- 4MB RAM installed Exp. to 32MB
- Two LOCAL BUS expansion slots
- Middle Tower case with 230 watt power supply
- 1.2MB & 1.4MB TEAC Floppy Drives
- 130MB MAXTOR Hard Drive 15ms
- 1:1 Dual FD/HD Controller card
- 2 Serial, 1 Parallel, 1 Game Port
- Trident Super VGA card w/1MB
- 1024x768 SVGA color Monitor .28 dot pitch
- 101 Enhanced Keyboard
- Hi-Resolution Mouse

$1595

DC 486DX-50MHz 256K Cache SYSTEM

- Intel 80486DX-50MHz Processor
- 256K Cache Memory
- 4MB RAM installed Exp. to 32MB
- Two LOCAL BUS Expansion slots
- 213MB Hard Drive 13.5ms
- 1024 x 768 SVGA .28 color Monitor
- (Same as 486DX-33 configuration)

$1945

Tseng Labs ET4000 32-bit Local Bus Super VGA card w/1MB. Displays 32,768 colors. Resolution up to 1280 x 1024. 72Hz refresh rate.

Add $85

S3 (IBM XGA) graphics accelerator 32-bit Local Bus Super VGA card w/1MB VRAM. Displays 32,768 colors. Resolution up to 1280 x 1024. 72Hz Refresh rate.

Add $185

IDE Cache Controller card w/1MB, max 16MB, 0.4ms access time, 5 MB/s transfer rate, supports 4 IDE HDDs & 2 FDDs

Add $195

NON-INTERLACED MONITOR UPGRADE. 1024 X 768 14" SUPER VGA COLOR MONITOR .28 DOT PITCH.

Add $30

DC 386DX-40MHz

- AMD 80386-40MHz Processor
- 64K Cache Memory
- 4MB RAM installed Exp. to 32MB
- Mini-Tower Case w/200 watt P/S
- 1.2MB & 1.4MB TEAC Floppy Drives
- 130MB MAXTOR Hard Drive 15ms
- 1:1 Dual FD/HD Controller
- 2 Serial, 1 Parallel, 1 Game Port
- Trident Super VGA card w/1MB
- 1024 x 768 SVGA color Monitor .28 dot pitch
- 101 Enhanced Keyboard
- Hi-Resolution Mouse

$1165

DC 386DX-33MHz 64K Cache System

- INTEL 80386-33MHz Processor
- 64K Cache Memory
- 130MB MAXTOR Hard Drive 15ms
- 1024 x 768 SVGA color Monitor .28 dot pitch
- Hi-Resolution Mouse
- (Same as 386-40 configuration)

$1165

DC 386SX-25MHz

- AMD 80386SX-25MHz Processor
- 1MB RAM installed Exp. to 16MB
- Mini-Tower Case w/200 watt P/S
- 1.2MB OR 1.4MB TEAC Floppy Drive
- 40MB Hard Drive 28ms
- 1:1 Dual FD/HD Controller
- 2 Serial, 1 Parallel, 1 Game Port
- Super VGA card w/256K
- 1024x768 SVGA color Monitor .39mm
- 101 Enhanced Keyboard

$725

DC 386DX-33MHz

- 80386DX-33MHz Processor
- 4MB RAM installed Exp. to 32MB
- Mini-Tower Case w/200 watt P/S
- 1.2MB & 1.4MB TEAC Floppy Drives
- 85MB Hard Drive 18ms
- 1:1 Dual FD/HD Controller
- 2 Serial, 1 Parallel, 1 Game Port
- Super VGA card w/512K
- 1024 x 768 Super VGA color Monitor .28 dot pitch
- 101 Enhanced Keyboard
- Hi-Resolution Mouse

$985

NUVOTEL 96/24 FAX/MODEM	$ 50
WINDOWS 3.1 OR DOS 5.0	$ 35
ORCHID FAHRENHEIT 1280D	$245
14.4K INTERNAL FAX/MODEM	$249
14.4K EXTERNAL FAX/MODEM	$259
9600 INTERNAL MODEM	$209
9600 EXTERNAL MODEM	$229
NEC 4FG SVGA MONITOR	$735

DC 386DX-25MHz

- 80386DX-25MHz Processor
- 4MB RAM installed Exp. to 32MB
- Mini-Tower Case w/200 watt P/S
- 1.2MB & 1.4MB TEAC Floppy Drives
- 85MB Hard Drive 18ms
- 1:1 Dual FD/HD Controller
- 2 Serial, 1 Parallel, 1 Game Port
- Super VGA card w/512K
- 1024 x 768 Super VGA color Monitor .28 dot pitch
- 101 Enhanced Keyboard & Mouse
- Hi-Resolution Mouse

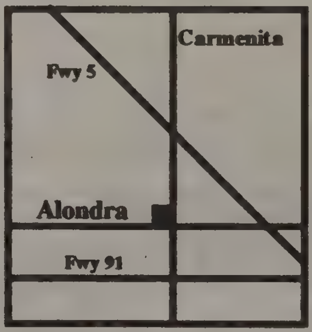
$945

DC 486SX-25MHz

- 80486SX-25MHz Processor
- 4MB RAM installed Exp. to 32MB
- Mini-Tower Case w/200 watt P/S
- 1.2MB & 1.4MB TEAC Floppy Drives
- 130MB MAXTOR Hard Drive 15ms
- 1:1 Dual FD/HD Controller
- 2 Serial, 1 Parallel, 1 Game Port
- Trident Super VGA card w/1MB
- 1024 x 768 SVGA color Monitor .28 dot pitch
- 101 Enhanced Keyboard
- Hi-Resolution Mouse

$1165

D.C. Computer, Inc.



15605 Carmenita Rd. #106
Santa Fe Springs, CA 90670
FAX: (310) 802-2662

Business Hours:
Mon-Fri 10am-7:30pm
Saturday 10am-6:30pm

ALL PRICES ARE GOOD FOR C.O.D. CASH, CASHIER'S CHECK OR CHECK ONLY

Tel: (310) 926-9331

Our systems come with 1 year PARTS and LABOR Warranty

USER GROUPS

(310)454-4660. [Exp. #99.]

Tri-City Apple Users Group. Meetings: 3rd Thurs., 7pm, Pasadena Central Library, 285 E. Walnut St. Friendly Apple II experts. Call: (213)258-0281. [Exp. #102.]

Valley Apple Computer Club. Meetings: 3rd Tues., 7:30 pm. Cleveland High School, 8140 Van Alden, Reseda. Apple II, II+, IIc, IIe, and IIgs. No Macs. Call: Bill, (818)988-1852. [Exp. #100.]

ATARI

ATESIG—Atari 8-bit SIG. Meetings: 145 Surf Pl., Seal Beach. Cooperative user group for Model Railroad applications. Call: (310)430-5433. [Exp. #100.]

RAM Atari ST User Group Of Ventura County. Meetings: 3rd Wed., 7:30 pm, Call: Tim, (805)389-0059 or write PO Box 112, Camarillo, CA 93011. [Exp. #102.]

South Bay Atari Computer Enthusiasts. Meetings: 2nd Tues., 7:30 pm, Lomita VFW Hall, 1865 W. Lomita Blvd. Active since 1985, novices & all skills welcome. Call: (310)375-4839. [Exp. #102]

CAD/CAM

Los Angeles Area AutoCAD User Group. Meetings: 4th Wed., 6:30 pm, Burbank Board of Realtor's Bldg., 2006 W. Magnolia Blvd., Burbank Meetings feature tutorials, Q&As, demos, hands-on, BBS, and newsletter. Call: M. Berman. (818)762-9966. [Exp. #98.]

COMMODORE

C128 West Commodore 128 User Group. Meetings: Covina & Santa Monica. Free membership. Large disk library. Call: John, (818)331-1589; Paul, (818)892-3859; BBS (714)598-1755 FidoNet. [Exp. #98.]

Commodore Helpers Of Long Beach. Meetings: 2nd Sat., 9:00 am. St. Timothy's Lutheran Church, Woodruff and Arbor in Lakewood. Supports 64/128 models. Call: Tom Hoy, (310)424-0508. [Exp. #99.]

Orange County Commodore Club. Meetings: 4th Sat., 11 am, Fidelity Federal Bank, 19900 Beach Blvd., (Newland Shpg Ctr) Huntington Beach. Call: Mike Moore, (714)668-9715. [Exp. #99.]

IS YOUR LISTING MISSING?

Free user group and association listings are limited to the group's name and a ten-word description, including mailing address and phone number. They will be **deleted at six-month intervals. Free BBS listings** are limited to the board's name, sysop's name, and a ten-word description including parameters, baud rate, phone number, and registration fee. **Listings are deleted after three months. Send your info to: US Mail:** MicroTimes User Group, 3470 Buskirk Ave., Pleasant Hill, CA 94523. **Fax:**(510)934-2417 or (213) 851-8600. **Email:** microx @well.sf.ca.us. Or MCI: MICROTIMES.

South Bay Commodore Users Group. Meetings: 3rd Thurs, 7:00 pm. SEC Redondo Generating Station, 1100 Harbor Dr. (across from King Yacht Harbor). Free and open to all who use or own Commodore computers and to those who would like to receive or exchange information on programs, applications, or hardware. Call: (310)324-8357. [Exp. #102.]

CORELDRAW

Association Of Corel Artists & Designers, LA Chapter. Meetings: Next to last Tues., 7:00 pm, Glendale Federal Bank Building, 401 N. Brand Blvd. An international nonprofit user group network for anyone using or interested in CorelDraw. Call: (310)452-5637. [Exp. #102.]

DESKTOP PUBLISHING

Southern California Ventura Publisher User Group (SC–VPUG). Meetings: Last Tues., 7pm, 401 N. Brand, Glendale, Glendale Federal Bank Building. Product demos, Q&As, library resources. Call: (818)955-5830. [Exp. #101.]

VICUG—DTP (Valley IBM/Compatibles User Group—Desktop Publishing). Meetings: 1st Fri., 7pm, Union Federal Savings Bank, 13330 Ventura Blvd., Sherman Oaks. Membership fee $25/yr or $3 at the door. Call: Harry Tischler, (818)997-1470. [Exp. #99.]

EPSON

SFV & LA Epson QX User Group. Meetings: 3rd Mon., 7pm, The Meeting Place, Fallbrook Mall, Canoga Park. Call: Bill Winter, (818)347-7417. [Exp. #98.]

IBM & COMPATIBLES

Greater South Bay PC User Group. Meetings: 2nd Thurs., 7:30 pm, Christ King Lutheran, 2706 W. 182nd St., Torrance. Visitors welcome. Call: (310)542-4996. [Exp. #99.]

Los Angeles Computer Society. Meetings: 2nd Tues., 7pm, Culver City High School Cafeteria. Meetings are free and there are always live presentations and giveaways. Call: (310)473-6668. [Exp. #102.]

NOCCC Business & Spreadsheets SIG. Meetings: 1st Sun., 11am, Chapman College, City of Orange. One of twenty-two SIGs. Call: (714)998-8080. BBS: (714)962-1857. [Exp. #103.]

Orange Coast IBM PC User Group. Meetings: Last Sat., 9am. Orange Coast College. Speakers, BBS, software library, newsletter, and SIGs. Everyone welcome. Call: (714)843-2048. [Exp. #99.]

Pasadena IBM User Group. Meetings: 3rd Wed., 7pm, 2184 N. Lake Ave., Altadena. Speakers on hardware/software, SIGs, library, and newsletter. Call: Steve Bass, (818)795-2300. [Exp. #99.]

Thousand Oaks Personal Computer Club (TOPCC). Meetings: 4th Thurs., 6pm, Goebel Senior Adult Center, 1385 E. Janss Rd., Thousand Oaks. Call: (805)496-9699. [Exp. #102.]

Valley Computer Club. Meetings: 1st Wed., 7pm, Burbank Board of Realtor's Bldg., 2006 W. Magnolia, Burbank. BBS, PD library, SIGs, newsletter. All welcome. Call: (818)842-3707 or (213)227-9684. [Exp. #99.]

Ventura PC User Group. Meetings: 3rd Sat., 9am, Poinsettia Pavilion, Canada Larga Rm., 3451 Foothill Rd., Ventura. Guests welcome, no charge for attendance. Call: Kenn Ritza, (805)644-6955. [Exp. #99.]

VICUG (Valley IBM/Compatibles User Group). Meetings: 4th Fri., 7pm, Security Pacific Bank, 14801 Ventura Blvd., Sherman Oaks. Membership fee $25/yr or $3 at the door. Call: Harry Tischler, (818)997-1470. [Exp. #99.]

KAYPRO

West Los Angeles Kaypro User Group/KAYOS Kaypro User Group. Meetings: 4th Mon. of even months, 6pm, El Segundo. Call: Margot, (310)379-8339. [Exp. #101.]

K-MAN

Southern California KnowledgeMan User Group. Meetings: 1st Wed., 7pm, Honda North America, Bldg. 300, 700 Van Ness Ave., Torrance. Call: (213)662-9910. [Exp. #100.]

MACINTOSH

The American Film Institute Mac User Group (AFIMUG). Meetings: 2nd Mon., Apple Lab, AFI, Hollywood. TV, film, and video. Call: Dave Chadderdon, (213)856-7743. [Exp. #99.]

Los Angeles Macintosh Group (LAMG). Meetings: 3rd Thurs., 7:30 pm, Dept. of Water & Power, 111 N. Hope St. So. Cal's largest all Mac user group meetings, monthly magazine, classes, PD software and more. Call: (310)278-LAMG. [Exp. #100.]

MacValley User Group. Meetings: 1st Wed., 7pm, Wilkinson Senior Center, 8956 Vanalden, Northridge. Meetings, new product demos, newsletter, PD and shareware software, and more. Membership dues, $30/yr. Visitors welcome. Call: Bob Campbell, (818)784-8666. [Exp. #101.]

Orange Apple Computer Club. Meetings: 1st Sat., 9am, Orange Coast College, Chemistry Lab. Macintosh supported. Call: (714)731-9243. [Exp. #99.]

Original Apple Corps, Macintosh User Group. Meetings: 2nd Sun. Support for beginners through experts. Write: PO Box 90065, Los Angeles, CA 90009. Call: Fred Duffy, (310)475-8400. BBS: (310)454-4660. [Exp. #99.]

San Gabriel Valley Mac Users Group. Meetings: 1st Thurs., 7:30 pm, Pasadena Central Library Auditorium. Call: (213)684-ICON. [Exp. #98.]

West Orange County Macintosh User Group (WOCMUG). Meetings: last Tues., 7:00 pm, F&M Bank, 12535 Seal Beach Blvd., in the Rossmoor Shopping Center. Visitors always welcome! Topics for beginning to advanced users. Call: (310)493-1240. [Exp. #100.]

Whittier Area Mac User Group. Meetings: 2nd Sat., 10am, Granada Heights Friends Church, La Mirada. Call: (310)947-2447. [Exp. #99.]

NEXT

Southern California NeXTSTEP User Group. Meetings: throughout LA County. Call: Mike Mahoney, (310)985-1550 or Bob Desharnais, (213)343-2056. [Exp. #100.]

TEXAS INSTRUMENTS

TI/944A Home Computer User Group. Meetings: 2nd Mon., 7:00 pm, Pomona First Federal, 9090 Central Ave., Montclair. Monthly newsletter, demos, and fairware. Call: (714)627-3403. [Exp. #102.]

UGOC. Meetings: 2nd Mon., Fidelity Federal, 13820 Seal Beach Blvd. Call: Stan, (714)892-8218. [Exp. #102.]

THEOS

THEOS User Group. Call: Fred Bellemy, (805)965-0265. [Exp. #99.]

UNIX

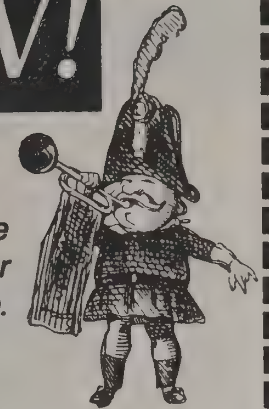
UNIX User Association Of Southern California. Meetings: 2nd Mon., 7pm, New Horizons Learnings Center, 1231 E. Dyer Rd., Santa Ana. Call: Vince, (714)556-1220, ext. 126. [Exp. #100.]

VIDEO TOASTER

TUG—Toaster Users Group Of Orange County. Meetings: 3rd Thurs. Call: Bruce, (714)894-1777. [Exp. #99.]

TVN—The Toasted Video Network. Video Toaster Network. Call: James, (714)695-1665. [Exp. #100.]

NEW!



See it like you've never seen it before.

LA ONLINE

Los Angeles' free-access on-line service. Now with

TRUE GRAPHICS

FEATURING

No Set-up Fees
No Monthly Fees
No Access Fees

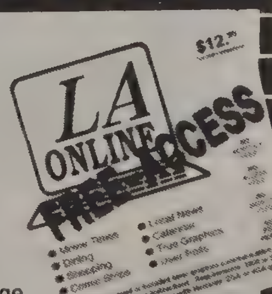
PLUS

- Dining
- News
- Movie Times
- Events
- Shopping
- User Polls

and more

LA ONLINE COUPON

$1.00 OFF



purchase of LA ONLINE graphics communications software with this coupon. Limit 1 coupon per package.

Offer Expires 08/22/92

For a store near you, call LA ONLINE at (310) 372-9364.

continued from page 128

still for seventeen seconds, and a 3-D camera goes around you. And instantly what pops up on the screen is a three-dimensional model of your entire head, with a photograph of your face from every angle texture-mapped onto it. We've had lots of people do it now, so we have this database of all of our heads. What we're going to *do* with it I haven't the slightest idea...but we have this library now.

"It's amazing that in seventeen seconds you can have this image on the screen that you can then move around with a mouse and look at it from different angles. The resolution's as good as a photograph. As good as a video camera photograph, of course."

The three-dimensional camera is the product of Cyberware Laboratory in Monterey. The camera is connected to a PC, which is in turn connected to an SGI 4D/220 workstation with 40MB of RAM, VGX graphics, and two CPU boards with MIPS R2000A/R3000 CPUs running at 25MHz. Graphics transformations are done in hardware, which supports anti-aliasing, motion blur, depth cuing, and texture mapping.

Explains programmer Jeanne Rich, who took existing software created with Iris Inventor by SGI's Thad Beier and Gavin Bell and enhanced it for the project: "The scanner projects a beam of red light, which the scanner uses to pick up the 3-D information and the color along the beam of light. As the camera moves around the subject, it continues to pick up the longitudinal information, and from this a 3-D quadmesh can be determined.

"If you look at the wireframe of the model, you see four-sided shapes. A quadmesh connects the four-sided shapes together to create a model.

"The color information picked up by the camera is mapped onto the quadmesh. Various Cyberware products which run on the SGI system are used to clean up the data. Once the quadmesh has been cleaned up, a program is used which registers the color data so the heads can align—that is, for each head, the eyes, ears, nose, and mouth are in the same location. From this, a 40x40 quadmesh is created, which can be used for morphing.

"The morph program allows control of the animation, that is, control of the change of one head to the other. The user can change the transition rate and manually control the morphing. A sequencer allows changing the objects selected for morphing, and the process is viewed though an Inventor examiner view which allows the user to rotate and translate the object in real time. Rotation can be made to operate without user intervention. The user can also zoom in and out on the object."

The data and programs used to generate these effects are quite large and reside on the workstation's hard disk. However, in order to keep the effects smooth and seamless, they are running in memory. Consequently a system designed for this purpose tends to have a lot of RAM, usually at least 60–80MB.

FURTHER

"It's certainly a unique concert situation," says Hartnett. "The Grateful Dead are unlike any other band in the world. The crowd is so in tune with them that they pick up on every single nuance of the performance. So it's keeping us all on our toes. Everybody's constantly pushing each other to go a little bit higher, just in terms of our output. With a fan base that's so loyal and that follows every single element of the show itself, we're hoping that video will go along for the entire tour at some point."

Plans for the future include a number of projects to take further advantage of the Iris system's capabilities. Not surprisingly, Son of Morph is high on the list.

"The band really got into it," Hartnett says. "In the long run, we're hoping to scan the band in completely, so we have a computer model of all of them. We'll go back in and do their whole bodies. Eventually what we want is an animation character for each member of the band, and looking further down the line, have them be able to do interactive video, so they could actually interact with the combination of what we put up on screens and the animation we're generating."

He's also working with lighting director Brightman to achieve interesting new combinations of computer effects and conventional lighting tools. "Candace wanted to start using video on the floor, probably starting off small with playback and effects, and then gradually building up.

"All the elements are working together. The lighting, the sound, the staging, the video. What we're trying to do, and I think we're doing a real good job now, is creating one whole palette. With Candace's lighting, she involves everybody in the stadium in the show. There's a lot of lighting effects designed specifically for the crowd—lighting different parts of the audience, really bringing everybody into the performance and making the entire arena part of the set.

"We shoot out into the back of the hall, following light trails as they go back into the audience. The other night in Giants' Stadium, it was a full moon, so we were getting moon shots and incorporating them into the show. The Deadheads are both a colorful and an enthusiastic bunch, so we've been trying to get more pictures of them up on the screens, drawing them into the show further.

"At its best, what I'm doing on video is complementing what the lighting is doing, which is complementing what the band's doing. It's trying to be one cohesive unit that has one head and three hundred arms, and it's really a challenge to do, night to night. But this is actually the most fun gig I've ever had." ■

Video director Bob Hartnett: "Before, the Dead had used a Fairlight, which is kind of antiquated at this point. But the VGXT workstation from SGI is much more sophisticated in terms of application and output. All the psychedelic overlays that we use to layer in keys during the performances are generated in real time, with the operator pretty much jamming video-wise when the band jams onstage music-wise."

Introducing 486-50 MHz EISA Server

With 12 EISA Slots & up to 256 MB on Board Memory

Featuring

- Intel's 486DX/486DX2 32 bit CPU
- Easy upgradability with Intel's Over Drive Processors
- Up to 256 MB on board memory
- Upgradable write back secondary cache memory 64KB, 128KB, 256KB, 512KB
- 12 32 bit EISA Slots, 8 Bus Master Slots

Math Coprocessor

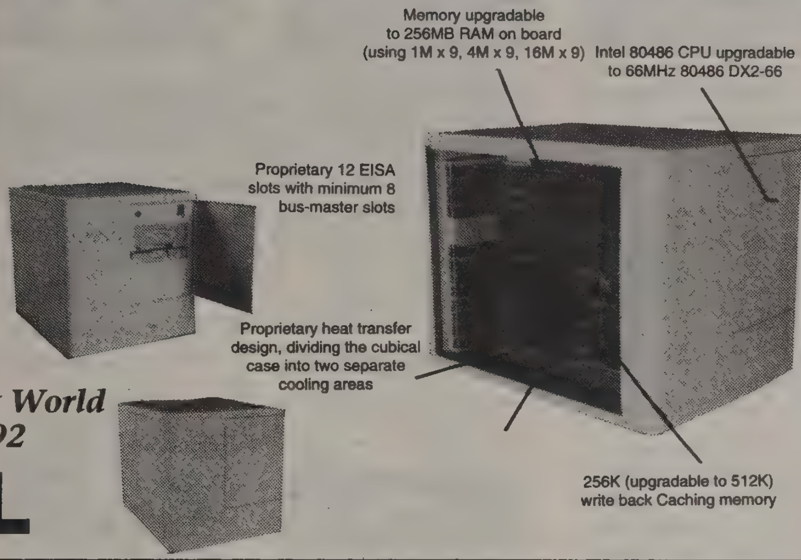
- Supports Weitek 4167 math coprocessor

Cache Memory

- 8 KB internal cache memory
- Up to 512KB write back secondary cache on board

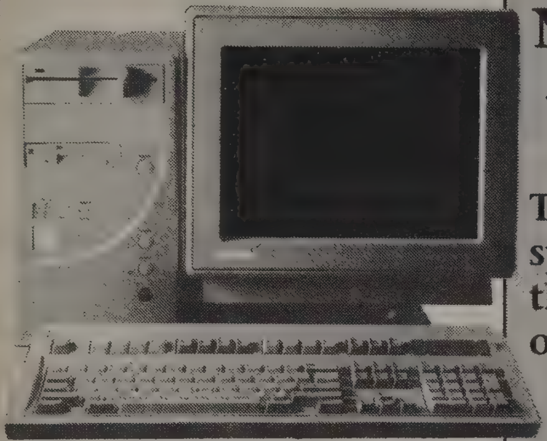
Main Memory

- Up to 256MB with on board SIMM's
- 1MX9, 4MX9 or 16MX9


Memory upgradable to 256MB RAM on board (using 1M x 9, 4M x 9, 16M x 9)
Intel 80486 CPU upgradable to 66MHz 80486 DX2-66
Proprietary 12 EISA slots with minimum 8 bus-master slots
Proprietary heat transfer design, dividing the cubical case into two separate cooling areas
256K (upgradable to 512K) write back Caching memory

Recommended by Computer Buying World Magazine, June '92

$CALL



NEW BREAKTHROUGH TECHNOLOGY

32-BIT LOCAL BUS WITH S3 SUPER VGA CARD

FASTEST GRAPHICS PERFORMANCE PRODUCTS ON THE MARKET

The hardware line drawing speed is nearly 10 times faster than the line drawing speed on just a super VGA system.

Complete System

Local Bus 486-33 Motherboard
4MB RAM
120MB Hard Drive
S3 Super VGA Graphics
32 bit local bus IDE Controller

for only $1995

Come visit us for a complete test drive!

COMPLETE DYNAMIC SYSTEMS	SVGA 40MB System	SVGA 80MB System	SVGA 120MB System	SVGA 200MB System
486-50 ISA w/64K Cache	$1608	$1708	$1748	$2048
486 DX2-50 ISA w/256K Cache	1579	1679	1713	1940
486-33 ISA w/64K Cache	1264	1364	1398	1628
486SX-25 ISA	1140	1224	1264	1524
486SX-20 ISA	1090	1174	1214	1474
386-33 w/64K Cache	1040	1124	1149	1384
386SX-25 w/32K Cache	902	1012	1056	1342

All Systems Include:

- Super VGA Monitor 1024x768, .28 dot pitch w/512K SVGA Card
- Motherboard with CPU
- 1 MB RAM Memory
- 1.2MB or 1.44MB Floppy Drive
- Serial, Parallel, & Game Ports
- 101 Enhanced Keyboard

Quality Guarantee

With over 10 years manufacturing experience, you can count on Dynamic Office Systems for the best performance, value, and overall satisfaction. Our computers use only the finest components available. Our superior products are guaranteed for long life, and are fully upgradable. Join our list of satisfied customers, with quality you can count on. Dynamic Office Systems offers you the best performance and value in the industry.

Warranty and Service

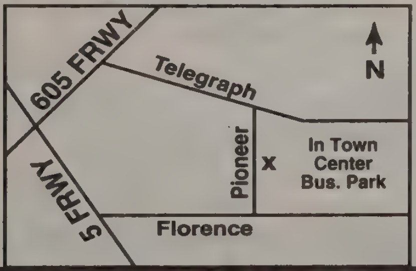
- One year warranty on parts and labor
- Lifetime technical support
- Complete In-Store service center
- Call for additional information on Networking Services

The Intel Inside Logo is a trademark of Intel Corporation

Dynamic Office Systems

10440 Pioneer Blvd. Suite 4
Santa Fe Springs, CA 90670

(310) 941-6630
FAX: (310) 941-5287


605 FRWY
Telegraph
N
5 FRWY
Pioneer
X
In Town Center Bus. Park
Florence

CLASSIFIEDS

BULLETIN BOARDS

FREE WINDOWS FILES, Windows Online (510)736-8343 BBS. Get those hard to find public domain Win3 files. Call from your home or office, by modem. Assist your company with their networking of Windows. Developers, upload your demos and sharware for distribution, — WOL provides 35 new Win3/DOS files every day & we currently have over 3,500+ Win3 files — we have over 400 message & support Conferences — WOL staff writers provide Windows tips, shareware and commercial SW reviews, new Win3 product releases and Visual Basic programming instruction. — Win3 programmers and developers meeting place — USR-DS modems for members — CompuComs for nonmembers. — 13 phone lines — 3.0 gigabytes — Visa and MasterCard accepted — Editor & Publisher, Frank Mahaney.

BUSINESS OPPORTUNITIES

HIGH GROWTH OPPORTUNITY. Computer Industry's Next BILLION Dollar Market, refer WSJ 10/29/91, 5/26/92, etc. If you seek partnership, have $$$, contacts, experience, motivation. Call David Howard (714) 963-6796

Resellers wanted to sell our multi-user, highly integrated expert software system to distribution & manufacturing companies. Runs on DOS, PICK, UNIX. We: write your proposals, demo, handle after sales support. No startup fees. Classic Solutions (714) 724-4597

EQUIPMENT

IBM-XT, 640K, 286 Turbocard DOS 5.0, DR DOS 6.0, 1.2/1.44, 66MB & 30MB, mouse, CGA, $550/obo w FX80 w NLQ upgrade. (714) 965-1011 eves.

COMPUTER INSURANCE

SAFEWARE

INSURES YOUR COMPUTERS!

Full replacement of hardware, media, purchased software. From $49 yearly. Covers fire, theft, power surges, other accidents. Blanket coverage; no list of equipment needed. Low $50 deductible. Call for information or immediate coverage.

☎ **1-800-848-3469**
Local (614) 262-0559

SAFEWARE: The Insurance Agency Inc.
2929 N. High Street, PO Box 02211
Columbus, OH 43202

HARDWARE

New Drives Sale. IDE: 105MB, $290. Seagate 120 MB, $334. SCSI: Quantum 105 MB, $325. (818) 281-2755

NCR Tower 32/650 multi-user computer, 2-170 MB HD, 5.25" FD, 120MB tape, 16MB RAM, UNIX-V OS, 24 user I/O. $10,000/obo. (310) 532-4536

Panasonic KX-P1624, brand new, 24 pin, prints 192 CPS m draft mode, prints bi-direction, letter quality fonts. (818) 248-5579

HARDWARE FOR SALE

JOBS OFFERED

WANTED

Computer Sales Person

Great earning potential! If you have lots of energy and are a self starter, then call us today! Sales experience desired. Salary plus commission

Call Sophia:
(213) 264-3728

HARDWARE

Atari 800XL computer system, including color monitor, disk drives, printer, modem, software, $300. (714) 526-3737

Wang computer tapes, 1/2", 24 foot, 9-track, large quantity, $4 ea tape. (310) 694-2993

Amiga 500, kickstart 1.3, 512K, great condition, $300/obo. Kyaw (714) 362-0582

Wang WP20 CPU & 5536 Workstation, also Bisync controller, stored, no warranty, $300 all. (805) 987-7303

HARDWARE FOR SALE

HP LASER JET SERIES II
LASER PRINTERS
$995.00
90 DAY WARRANTY
LASER PRINTER SUPPLIES
MESA LASER
(714)978-8136 (800)400-8949

HARDWARE

Intel 4 Meg Piggyback memory expansion for 386 Inboard, $150. Bruce (310) 320-7512

Osborn, Zenith monitor, modem w/manuals & software. Diablo 630 printer. $300/obo. Phil (714) 725-0185

286-33DX motherboard, 1 MB RAM, $100. (818) 451-6521

HARDWARE

Epson HI-80, 4-pen, A-size color plotter, Parallel & serial HPGL interface, $275. Jay (805) 298-3669

Packard Bell 386SX-16, 1 MB RAM, 1.2 floppy, IQE controller, new in box, $250. Kim (213) 774-5844

JOBS OFFERED

Make Big money fast with your home computer. Many money making opportunities, 24/hour recorded msg. (818) 594-1784 ext. 225.

OPTICAL SCANNING

OPTICAL SCANNING

OPTICAL SCANNING

Why enter data by hand?

...When you can *automatically* capture it!

Types of Data Capture

HANDPRINT RECOGNITION

800 SCAN
Name
543 HOWARD ST
Address
SF CA 94105
City, State, Zip
1-800-800-7226
Telephone

NUMBER RECOGNITION

How many people in your company?	58
How many people do you maintain on your data entry staff?	12
How many forms do you data enter each day?	975

OPTICAL CHARACTER RECOGNITION (OCR)

OCR *technology* can now READ most **fonts** used in **business**, *even* when **MIXED** on a **PAGE.**

CHECK BOXES (OMR)

	Never	Seldom	Often	Always
Does your volume sometimes exceed what your staff can ' andle?	☐	☐	☐	☒
Is it preferable to verify rejects, rather than data enter every form?	☐	☐	☑	☐
Is the ability to read mixed data helpful?	☐	☐	☑	☐
Are your budgeting and staffing requirements in conflict?	☐	☒	☐	☐

SPECIAL HANDLING NEEDS

- **Forms Recognition**
- **Automatic De-skewing**
- **Field Extraction**

Data capture from paper documents or fax transmissions.

Call 1-800-800-SCAN

© 1992 800-SCAN • 543 Howard Street • San Francisco, CA 94105 • (415) 495-6509

To Place A Classified Ad:

FREE ADS: Private individuals may have one free classified ad of 15 words or less (in all categories EXCEPT "Personal"). Additional words are 50¢ per word. A phone number, including area code, counts as one word. If you want your ad to run more than once, all subsequent printings will be charged at one half business rates.

BUSINESS ADS: Rates are $15 for 15 words or less. 50¢ for each additional word. Again, your phone number counts as one word.

TO ORDER BY MAIL: SEND COUPON TO:
MicroTimes Classifieds
6767 Forest Lawn Drive, #110
Los Angeles, CA 90068

TO ORDER BY PHONE with Visa or MasterCard only, call **(213) 851-8600**

For a mere fraction of your paycheck—buy, sell, trade . . . whatever! Just $15 for the first 15 words plus 50¢ for each additional word, per issue.

CATEGORY

- ☐ Bulletin Boards
- ☐ Equipment
- ☐ Hardware For Sale
- ☐ Jobs Offered
- ☐ Jobs Wanted
- ☐ Office Space
- ☐ Personal
- ☐ Repairs
- ☐ Services
- ☐ Software For Sale
- ☐ Video
- ☐ Wanted
- ☐ Will Trade

No refunds will be given after copy is received. Credit may be given under certain circumstances

Cost of ad________ X number of issues to run __________ = Amount Enclosed__________

Send Check ☐ Money Order ☐
Visa ☐ or MasterCard ☐ Exp. Date ________

Account Number

Signature

Advertisers Name ________________
Street Address ________________
City__________ State______ Zip______
Phone(______)____________

Send To: MicroTimes Classifieds, 6767 Forest Lawn Drive, #110 Los Angeles, CA 90068

DEADLINE FOR INSERTION IN THE AUGUST 3, 1992 ISSUE IS NOON ON MONDAY, AUGUST 17, 1992

CLASSIFIEDS

MISCELLANEOUS

Collector has large collection of sports cards. Old & new, to trade for anything interesting. (714) 495-2890

REPAIRS

UniTek Co.
Hard Disc Services
Specializing in repair of PRIAM
CONNER, MAXTOR, SEAGATE Hard Drives
From 85¢ per MB
(408) 395-0382

PERSONAL

Handsome Autocad instructor seeks an attractive female programmer for various personal & business adventures. Send photo & letter to: 2455 Aquasanta, Tustin, CA 92680.

Look in MicroTimes' Classifieds for the products and services you need!!
MICROTIMES

REPAIRS

MICROTIMES
CLASSIFIEDS
WILL HELP
YOU REACH
THE TOP
FASTER
CALL TODAY
(213) 851-8600

PRINTER, COMPUTER, MONITOR, FAX REPAIRS
AUTHORIZED SERVICE CENTER SINCE 1984

APPLE ■ IBM ■ COMPAQ
EPSON ■ PANASONIC ■ CITIZEN
OKIDATA ■ BROTHER ■ HP
MOST BRAND NAMES
CERTIFIED TECHNICIANS IN-HOUSE SPARES WARRANTY
LOW RATES ■ CONTRACT RATES

COMPUTER PRODUCT SERVICE, INC.
1020 N. Batavia St., Suite G, Orange, CA 92667
TEL: (714) 532-3746 FAX: (714) 532-5491

MONITOR REPAIR

All Brand names & Models

- LOW FLAT RATE

IBM, Compaq, NEC, AST, ALR, Zenith, Samsung, Epson, CTX, Casper, Hyundai, Evervision, Mitsubishi, and more ...

- Free estimate
- 180 day warranty
- 2 to 4 day turn-around
- Pickup & Delivery
- Loaner available.

CORPORATE P.O. WELCOME !

Advanced Monitor Repair, Inc.
3303 Harbor Blvd. Ste #B6, Costa Mesa, CA 92626
Tel (714) 434-6016 ** Fax (714) 434-3622

REPAIRING MONITORS

- ALL COLOR MONITORS 12"–14" $90
- ALL MONOCHROME MONITORS 12"–14" 40
- ALL MULTISYNC MONITORS 12"–14" 120
- **SPECIALIZED ON IBMs, NECs, COMPAQs, MACs**
- FREE ESTIMATE...PICK UP... DELIVERY (In O.C.)
- SIX MONTHS WARRANTY

3 DAY TURNAROUND (Average)

✓ *SERVICE 7 DAYS A WEEK*
✓ *DEALERS WELCOME*

ACCUTEK
24602 Jutewood Place,
Lake Forest, CA 92630
TEL: (714) 458-2270 FAX: (714) 458-2947

REPAIRS

REPAIRS

WE WILL BEAT ANY ADVERTISED REPAIR & SALE PRICE

HARD DRIVE	REPAIR	PRICE	SALE PRICE	*DATA RECOVERY
CAPACITY	MFM/ IDE/RLL	ESDI/ SCSI	MFM/RLL ESDI/SCSI	MFM/RLL/IDE ESDI/SCSI
10 – 19MB	$60	N/A	$65	$200
20 – 29MB	$65	$75	$78	$250
30 – 39MB	$75	$85	$88	$300
40 – 49MB	$99	$125	$138	$350
50 – 85MB	$140	$175	$230	$400
86 –119MB	$190	$225	CALL	$450
120 –160MB	$240	$275	CALL	$500
161 –350MB	$300	$345	CALL	$600
351 –700MB	N/A	$395	CALL	$800

* Data recovery includes repair of the drive.
*No charge if we are unable to recover data.

FLOPPY DRIVE REPAIR PRICE		SALE PRICE
5.25" (360K & 1.2MB)	$20	$22 & $35
3.5" (720K & 1.4MB)	$25	$30 & $35
3.5" PS/2 (720K & 1.4MB)	$35	$35 & $50

TAPE DRIVE REPAIR...CALL FOR PRICE!

We repair Archive, Cipher, Emerald, Core, Everex, Genoa, IBM, Mountain Computers, Teac, Tandberg, Tecmar, Sysgen, Wangtek,Caliper, CMS, Exabyte, Irwin, Maynard, NCR, Unisys.

WE BUY & TRADE-WORKING OR NON-WORKING FLOPPY & HARD DRIVES

MONITOR REPAIR PRICE	
Any Mono	$45
Any CGA	$60
Any EGA	$65
Any VGA	$75
Any Super VGA	$80

CRT AND FLYBACKS EXCLUDED

SPECIAL SALE OF THE MONTH	
Conner/Maxtor/Western Digital 80MB IDE	$239
Conner/Maxtor/Western Digital 100MB IDE	$259
Conner/Maxtor/Western Digital 120MB IDE	$279
Conner/Maxtor/Western Digital 200MB IDE	$469
Miniscribe 71MB MFM	$195
Micropolis 150MB ESDI	$259
MFM Controller (AT or XT)	$39
IDE Controller with I/O	$22
IDE Controller	$15
Super VGA Monitor 1024x768, .31	$179

Drives, Controllers and Monitors Are New With One Year Warranty

PRO COMPUTER SERVICE COMPANY
14392 Hoover St., Suite B3
Westminster, CA 92683
Tel.: (714) 891-8293
Fax: (714) 891-3269

SERVICES

Cartridge Re-Manufacturing Series I, series II, IIP-EPL, Cannon Copier 3-5-7-65, Sharp Z50/70—$42.50 III-si—$99 (714)894-6250 message M.L.T. 6475 P.C.H., L.B., CA., 90801-0033.

Computer Training Facilities. We can provide premium computer training centers for you nationwide. Call (510)831-8075.

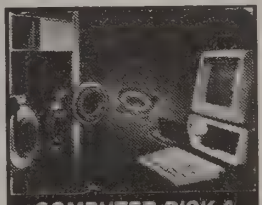
Specializing in Microsoft Windows & Novell networks. We offer custom programming, training & general consulting services. (310) 530-6962 Pathfinder Applications.

Macintosh Expert. Database design & programming, electronic publishing, hardware installation, & personal training. $60/hour. Ray Alcazar (818) 508-9045

Relaxation at last! Therapeutic massage pillows. Relaxes your entire body. Beautifully designed. Order your now! Rush $19.99 to: Keith Fallon Company, PO Box 4495, Whittier, CA 90607.

Computerized Billing Systems. Custom systems & software. 18+ years experience. Reasonable. (714) 581-3494

Windows Programming! Convert your programs from DOS to Windows. Most under $400 with one week turn-around. Custom programming available. Randall (310) 868-2556



COMPUTER DISK & TAPE CONVERSIONS
Micros ¥ Minis ¥ Mainframes
Many Formats¥ Backup Retrieval
DATA CONVERSION SERVICES
1-800-327-0330

REPAIRS

DATA RECOVERY

- Self Engineered Tools Provide An Over 90% Success Rate
- Competitive Prices
- Call Around & Compare!

SERVICE

- Manufacturer Trained Techs
- 3–5 Day Turnaround Guaranteed
- We Now Repair Hard Disks & Floppy Disks PS/2, COMPAQ, MACINTOSH

REPAIR	20MB from	$69
	30MB from	75
	40MB from	99
	50MB–70MB	125
	80MB & up	Call
SALE	20MB from	$75
	40MB from	125
	70MB from	250
	80MB & Up	Call

REPAIR: ST225/251...$69/99
SALE: ST225/251...$99/159

We buy working & nonworking hard drives

Micro Storage
COMPUTER SERVICE
2245 First Street, Suite 116 • Simi Valley, CA 93065
Tel (805) 582-9101 • Fax (805) 582-9102

NO REPAIR NO CHARGE

CLASSIFIEDS

SERVICES

SERVICES

SERVICES

SERVICES

SERVICES

SERVICES

Software Training

Inexpensive, Patient, & Thorough

WordPerfect • Excel • Mac Draw

Specializing in Macintosh. Perfect for business owners, entrepreneurs, and students who want to become proficient on their computer!

Call Today (818) 352-0308

ALPHABET CITY

☎ **(310) 787-7580**

1840 W. 220th St. • Suite 300
Torrance, California 90501

Postscript Services

1200/2400 D.P.I. Output
Color/Grayscale Scanning
Mac and IBM file conversion
Color Separations
Pick up & Delivery
Design & Layout
Typesetting

Reusable Toner Cartridges for Series II/III Laser Printers

Y Save 40% in Cartridge Costs
Y Print Quality as Good As New
Y Important Recycling Opportunity
Y Free Pick-Up and Delivery in Greater Los Angeles Area
Y Fully Guaranteed

(818) 794-5561 or (213) 624-0089

LAZER
Cartridge Service

We also buy empty cartridges

LCR

Laser Cartridge Recycling

HP's, CANON's, IBM's, EPSON
AND ALL OTHER LASER PRINTERS!

• LCR is Located in Irvine So Call Your Friendly Neighbor Today
• Free Pickup & Delivery
• 100% Guaranteed

We at LCR will Disassemble, Inspect, and Replace any worn parts on your toner cartridge. LCR will refill your toner cartridge with a high grade toner. Upon completion each cartridge is individually tested for maximum results.

WE BUY EMPTIES — (714) 453-0123
(714) 453-0520

Don t Delay,
Do it Today!!!

DUPLICATION

IBM OS/2 • MACINTOSH • APPLE
COMMODORE • UNIX

CD ROM

24 Hour Turnaround.
Fastest in the West,
No Minimums!!! Custom Printed
Tyvek Sleeves & Labels
Optical Text Scanning

I.D. DISK CO. 818-882-6454
NATIONWIDE 1-800-882-6454

MICROTIMES
Classifieds Work **Call 213-851-8600**

CATALINA TECHNOLOGY

FULL SERVICE COMPUTER SALES, SERVICE & REPAIR
ALL COMPATIBLES!
SPECIALIZING IN HARD DISK REPAIR

• 2 to 5 Day Turnaround • Full Warranty On Repair

WE SELL NEW & RECONDITIONED PRODUCTS!

(714) 434-9144
3422 L West MacArthur Blvd.
Santa Ana, CA 92704

DATA RECOVERY

Data returned "plug & play" on your drive
Very reasonable prices
Success rate over 90%•Rapid turnaround
DISK DRIVE REPAIR & SALES

DRIVE SERVICE COMPANY

3505 Cadillac Ave•G3•Costa Mesa•CA•92626
714-549-3475•Fax 714-549-9752

A SOFTWARE DUPLICATION

Wizard

BEST PRICING!

All 3.5" & 5.25" Formats

IBM Apple Macintosh Amiga PS/2
Commodore 64 CP/M Atari 520 ST
Wang Xerox Zenith TRS-80 UNIX

(714) 641-6691 FAX: (714) 641-6693
Santa Ana, CA

Fast computer repairs, sales, upgrades IBM compatibles, home, office, business 15 yrs experience, low rates. PDQ Computer Consultants (714) 593-5765 M-F 8-5.

SOFTWARE

Wordprint & Business Form Set, original complete programs with 20 disks, $30. Tien (714) 966-3042

MS Office for Mac, $450. MS Flight Simulator, $35. Both unopened. (310) 376-1574

Micrografx, Windows Draw, $70. ACE Software, ACE File, data base for Windows, $115. Spinnaker, FS: Window Works, integrated software, $50. ADOBE, Type Align, align text to curves, $50. Individual's, Resume Maker, $15. Time Works, Publish It! 2.0, DTP for DOS, $50. Lotus, miPro 1.2, word processor for windows, $80. Reference Software, Grammatik Windows 2.0, $30. Parsons Technology, It's Legal 2.0, document aid, $20. MST Inc., Home Based Business, 100+ business ideas, $8. Desk Jet Plus 256KB RAM cartridge, $125. Call Luis (310) 540-6934

SOFTWARE

Windows Software, Word, Lotus, P-Maker, Corel, W.P. & more, only $20-$30. Free catalog. Call (818) 994-8277

SOFTWARE DUPLICATION

Serving all of Southern California & the U.S.A. since 1980!

•Competitive Prices	**YES**	•Verifiability	**YES**
•5 1/4" & 3 1/2" Format	**YES**	•Quality	**YES**
•Fast Turn Around	**YES**	•Service	**YES**
•Packaging	**YES**	•Name Brand Media	**YES**

FSi
FUTURE SOLUTIONS, INC

17921G SkyPark Circle
Irvine, CA 92714
(714) 250-1133

HARD DRIVE REPAIR

SEAGATE, MINISCRIBE, TANDON RODIME, NEC & MORE!

- Data Recovery
- Quick Turnaround
- Six Months Warranty
- Low Rates

COMPUTER REPAIR/SALES

- PC/XT/AT Compatibles
- Maintenance Contract
- On-Site Or Carry-In Service
- Upgrades

MegaLink

714 -581- 8773
Fax: 714 - 581 -8775
23121 Plaza Pointe, Suite 105, Laguna Hills, CA 92653

MICROTIMES
Classifieds Work
Call (213) 851-8600

Mac-In-DOS

SOFTWARE BREAKTHROUGH!!!

Allows PC to read/write MAC 1.44 high density diskette. Exchange of text, binary & graphics files between Mac & DOS IS NOW POSSIBLE with this software. No cable or hardware is needed

Also Available...
on SUN, IBM, HP, SCO, Interactive UNIX.

Pacific Micro
(415) 948-6200
To Order Call 1-800-628-DISK

ALCOM SYSTEMS

M - F 9-6
SAT 10-5

VISA

14640 VICTORY BLVD., #125 & 118
VAN NUYS, CA 91411
TEL: (818) 989-9182
FAX: (818) 989-2371

FREE
PARKING
IN
REAR

ONE YEAR PARTS & LABOR WARRANTY. FREE LIFETIME TECHNICAL SUPPORT

486-50 / 256K CACHE

- INTEL CPU W/8K INT. CACHE
- MATH COPROCESSOR BUILT-IN
- 4 MB ON BOARD EXP. TO 64MB (70ns)
- TEAC 1.2 MB & 1.44 MB FLOPPY
- 120/130 MB IDE HARD DISK
- 16 BIT SUPER VGA CARD W/1MB MEMORY
- TATUNG SVGA MONITOR .28MM DP
- 2 SERIAL, 1 PARALLEL & GAME PORTS
- MEDIUM TOWER CASE W/230 WATT P.S.
- ENHANCED 101 KEY KEYBOARD

$1849

486-33 LOCAL BUS $1825

486-33 / 256K CACHE

- INTEL CPU W/8K INT. CACHE
- MATH COPROCESSOR BUILT-IN
- 4 MB ON BOARD EXP. TO 64MB (70ns)
- TEAC 1.2 MB & 1.44 MB FLOPPY
- 120/130 MB IDE HARD DISK
- 16 BIT SUPER VGA CARD W/1MB MEMORY
- TATUNG SVGA MONITOR .28MM DP
- 2 SERIAL, 1 PARALLEL & GAME
- MINITOWER CASE W/230 WATT P.S.
- ENHANCED 101 KEY KEYBOARD

$1549

64K CACHE $1519

386-40 / 64K CACHE

- AMD 386DX CPU, AMI BIOS
- MATH COPROCESSOR SOCKET
- 4 MB ON BOARD EXP TO 32MB (70ns)
- TEAC 1.2 MB & 1.44 MB FLOPPY
- 120/130 MB IDE HARD DISK
- 16 BIT SUPER VGA CARD W/1MB MEMORY
- TATUNG SVGA MONITOR .28MM DP
- 2 SERIAL, 1 PARALLEL & GAME
- MINITOWER CASE W/230 WATT P.S.
- ENHANCED 101 KEY KEYBOARD

$1199

386-33 MHz $1175

386SX-25

- AMD 386SX CPU, AMI BIOS
- 1 MB ON BOARD EXP TO 16MB
- TEAC 1.2 MB & 1.44 MB FLOPPY
- 40 MB IDE HARD DISK
- 16 BIT SUPER VGA CARD W/1MB MEMORY
- TATUNG SVGA MONITOR .28MM DP
- 2 SERIAL, 1 PARALLEL & GAME
- MINITOWER CASE W/230 WATT P.S.
- ENHANCED 101 KEY KEYBOARD

$899

286-20 MHz $859

FREE HI-RES MOUSE (1600 DPI) WITH ANY SYSTEM PURCHASED

QUALITY YOU CAN COUNT ON

DOS 5.0	$ 39	Goldstar 12" amber monitor	$ 80	Panasonic 1123 24-pin printer	$ 209
Windows 3.1	$ 39	Tatung 14" SVGA interlace .28	$ 275	Panasonic 1124i 24-pin printer	$ 299
3 Button Serial Mouse	$ 16	Tatung 14" SVGA non-interlace .28	$ 325	Panasonic 2123 color printer	$ 249
Track Ball	$ 26	NEC 4FG 15" SVGA non-interlace	$ 760	Okidata 390 Plus printer	$ 460
2400 Internal Modem	$ 45	Sony Internal CD-ROM w/Interface	$ 349	Okidata 400 Laser printer	$ 600
96/24 Internal FAX/Modem	$ 75	Sony External CD-ROM w/Interface	$ 399	600dpi Full Page COLOR Scanner	$1199
Colorado 120 MB Tape Drive	$205	with Software Bundle -------- ADD	$ 80	(FREE Aldus Photo Styler - A $529 VALUE)	
Colorado 250 MB Tape Drive	$275	IDE controller w/2 serial,parallel	$ 20	800dpi Full Page COLOR Scanner	$1499
Math Co-processor 287/387	CALL	Removable Hard Disk Frame	$ 40	(FREE Aldus Photo Styler - A $529 VALUE)	

DEALER
RESELLER
CONSULTANT
INQUIRY
WELCOME

WE ACCEPT
GOVERNMAENT
AND
UNIVERSITY
PURCHASE ORDERS

30-DAY MONEY BACK GUARANTEE

20% RESTOCKING FEE ON NON-DEFECTIVE PARTS
PRICE SUBJECT TO CHANGE WITHOUT NOTICE

ADVERTISERS INDEX

3-6 COMPUTERS 65
3-D RESEARCH 98
20/20 TECHNOLOGIES 48
A+ COMPUTER SYSTEMS 122
A-1 COMPUTERS 72
A.J. COMPUTER SUPPLIES 10
ABACUS 42,96
ACE, INC. 24
ACP SUPERSTORE 39, 92
ACS - ADVANCED COMPUTERS 87
ALCOM SYSTEMS 155
AMERICAL GROUP 3
AMERICAN RELIANCE 146
ASEAN COMPUTER TECHNOLOGIES 120
ATC 49
ATLANTIC 75
AUTHORIZED TECHNICAL SERVICES 138
B & N COMPUTER 68
BINARY GROUP, INC. 22, 23
BINOMIAL SYSTEMS 45
CAL STAR COMPUTER, INC. 51
CD GROUP 68
CELL MICRO 8
CERTIFIED NETWORK EDUCATORS 92
CITICOM COMPUTER, INC. 34
CLOVER BUSINESS SYSTEMS 114
COMP USA 19
COMPUTER BUSINESS CENTER 90, 91
COMPUTER CONCEPT 89
COMPUTER EDUCATION INTL 106
COMPUTER MARKETPLACE 141
COMPUTER PACER 18
COMPUTER SUPPLIES UNLIMITED 15
COMPUTER SUPPLY CLUB 97
COMPUTER SWAP 57
COMPUTER WIZ 35
COMPUTIX 119
COMTRADE 118
CONNECTPRO 139
CORPORATE SYSTEMS CENTER 43
CREATIVE COMPUTERS 131
D.C. COMPUTER, INC. 148
DATA DEPOT 57
DAV-TECH 4,5
DENNOW CORPORATION 16, 17
DHT 100, 101
DIGITECH RESEARCH 75
DOMINO SELF SERVICE CTR. 2
ELECTRONIC MUSIC BOX 121
ENTERPRISE COMPUTERS 145
EVERNET SYSTEMS, INC. 44
FLEXCOM, INC. 89
FRY'S ELECTRONICS 79-82, 159
GARY DAVIS & ASSOCIATES 14
GATETRONIX CONTROL SYSTEMS 73
GEM TEK 139
GOODMAN MUSIC 9
H. CO. COMPUTER PRODUCTS, INC. 157
HACKER ELECTRONICS 14
IMC DATA MANAGER 99
INFINITY PC & PERIPHERALS, INC. 60, 61
INPUT AUTOMATION 136
K-NET 84
KATRONIC COMPANY 143
KBBS 87
LA ON LINE 149
LAPTOP PLUS 36, 37
LASER CARTRIDGE NETWORK 63
LINNEX COMPUTERS, INC. 32
LOGICACHE COMPUTERS, INC. 48
M-TEK 102
MAGICTEK COMPUTERS, INC. 55
MAXIMUS 118
MICRO AMERICA 95
MICRO OPERATIONS 126
MICRO-CITY/GST, INC. 108, 109
MICROAGE 31
MICROSEL PERIPHERAL 68
MICROTEK COMPUTER, INC. 7
NET TECHNOLOGY 117
NEW AGE COMPUTERS 95
NEW TECHNOLOGIES 124, 125
PACIFICO COMPUTER CENTER 41
PAGE COMPUTERS 156
PASADENA COMPUTER CENTER 76, 77
PC HOUSE 147
PC LAND COMPUTERS 115
PC SEL 75
PC SYSTEMS DESIGN 70, 71
PEN BASED EXPO 116
PERIPHERAL REPAIR CORPORATION 92
QUALITY COMPUTER 86
QUARTERDECK OFFICE SYSTEMS 160
RANTEK 33
RESOULTION BUSINESS PRESS 96
RESOURCE INFORMATION SYSTEMS 27
REYES ELECTRONICS 84, 106
ROYAL COMPUTER 86
SA COMPUTERS 66
SAGER 28, 29
SEYBOLD SEMINARS 134
SIM-TRADE CO. 57
SMART MICRO TECHNOLOGIES 51
SOFT-HARD SYSTEMS 137
SONGTECH INTERNATIONAL, INC. 110
STAR SYSTEM TECHNOLOGY 87
SUN OPEN EXPO 10
SYNTAX COMPUTER 129
SYSTEM DYNAMIC 47
THE ESSENCE GROUP 111-113
THE PC FACTORY 11
TOP COMPUTER SYSTEMS 21
TOTE-A-LAP 59, 85
TOWER COMPUTER 104, 105
TRADE TECH COMPUTER SYSTEMS 93
ULTIMATE COMPUTER SOLUTIONS 50
UNIQ TECHNOLOGY 151
UNITEK COMPUTER STORES 12, 13
UQM COMPUTER 142
USM DISTRIBUTORS 132, 133
VALLEY COMPUTER 96
WECLY 139
WESTERN MICRO 88

This index is provided as an additional service. Although we do our best to maintain accuracy, the Publisher does not assume liability for errors or ommissions.

NAME BRAND COMPUTERS
AT UNBELIEVABLE PRICES

IBM

PS/2 SYSTEMS

PS/2, 30-286E01/20/30/40	$435/$565/$625/$825
PS/2, L40SX 2MB RAM 60MB NOTEBOOK	$2,095
PS/2, 25-286 01/20	$895/$1,095
PS/2, 50Z 30/60/120	$589/$789/$1,189
PS/2, 35SX 040/043	$1,055/$1,275
PS/2, 40SX 040/043/045	$1,175/$1,355/$1,525
PS/2, 57SL 055/059	$2,995/$3,285
PS/2, 57SX 045/049	$2,469/$2,819
PS/2, 55SX-30/60/120 W 4MB	$1,065/$1,465/$1,765
PS/2, 56SL 055/059	$2,695/$2,999
PS/2, 56SX 043/045	$1,949/$2,145
PS/2, 70-61/70-121/70-161 4MB	$1,889/$2,149/$2,219
PS/2, 70A61/70A21/70A16 4MB	$2,595/$2,895/$3,215
PS/2, 70B61/70B21 4MB 486-25DX	$3,195/$3,395
PS/2, P75-161/401	$6,531/$8,270
PS/2, 80-080/151/320 4MB	$2,399/$2,449/$3,089
PS/2, 80-A16/80A31 4MB	$3,999/$4,499
PS/2, 90-0K9/0KD	$4,995/$5,495
PS/2, 90-0H5/0H9/0HD	$3,975/$4,395/$4,895

PS/2, 90-0L9/0LD/OLF	$5,295/$5,795/$6,395
PS/2, 95 0K9/0KD/0KF	$6,399/$6,895/$7,395
PS/2, 95-0L9/0LD/0LF	$6,899/$7,395/$7,895
PS/1, 386SX-20 VGA 2MB 80/120 HD	$1,499/$1649
CASE F/60,80,50Z,70	$195
CASE F/55SX	$169
CASE F/30-286,30	$79
IBM LASERPRINTER 4029-6/10	$1,499/$1,659
POSTSCRIPT OPTION FOR 4029 LASER	$289
TAX FONT FOR IBM LASERS	$229
209 FONTS CARD FOR IBM LASER	$255
2-8MB BOARD F/PS,2 70/80 IBM 6450605	$295
1/2MB F/50Z,55SX,70 64506604	$52/$99
***SERIAL/PARALLEL PORT FOR PS2	$145***
***1.2 EXTERNAL FD FOR PS/2	$195***
***1.2 INTERNAL FD FOR PS/2 60,65,80	$225***
IBM MONITOR 8513/8503	$419/$169
IBM MONITOR 8513 220V	$495
IBM MONITOR 8507	$799
IBM MONITOR 8515	$599

CALL FOR TRADE-INS

IBM PARTS

***PS/2, 30-286E/30 8086 SYS.BOARD	$225/$169***
PS/2, 55 SX MOTHERBOARD	$499
PS/2, 80-20/ 80-25/80-16 SYS.BRD	$685/$1,295/$549
***PS/2, 50/50Z MOTHERBOARD	$255/$459***
PS/2, 70 486-25 MHZ M B W/PROCESSOR	$1,799
PS/2, 70 386-25 MHZ M B W/PROCESSOR	$1,549
PS/2, 70-16MHZ/20MHZ SYS.BRD	$749/$879
IBM 44MB/70MB HD FOR 60 & 80	$185/$395
120/60/30 MB HD F/PS/2 55SX,70,50Z	$599/$289/$155
SCSI HD 320MB/400MB F/PS2	$1,195/$1,385
IBM 1.2 GB HD SCSI	$2,495
IBM ESDI 314MB HD F/PS2	$985
ESDI HD 150 MB W/CONTROLLER F/80 & 60	$899
***PS/2, 30 30MB/20MB HARD DRIVE	$225/$155***
***IBM 720K&1.44 FD INT. F/PS/2 SYSTEMS	$129***
***IBM KEYBOARD F/PS2&AT	$95***
IBM MFM CONTROLLER CARD	$59
BUS CARD PS/2, MOD 50 HD&FD	$69
IBM ESDI/SCSI CONTROLLER	$225/$185

CALL FOR UPGRADED SYSTEMS

COMPAQ

COMPUTERS

CONTURA 3-20 MOD 40/40W/84	NEW
CONTURA 3-25 MOD 60/60W/120	NEW
DP 486S/25M/DP 486S/16M	$2,059/$1,895
DP 386-25M/DP 386-33M	$1,955/$2,050
COMPAQ HD UP GRADE 40/60/120	$199/$295/$455
DP 486/33M 1/120/340	$2,479/$2,875/$3,395
DP 486/50M 1/120/340	$2,985/$3,435/$3,950
PORT 486C 120/210	$7,495/$8,090
PORT 386-40MB/100 DEMO	$1,495/$1,895
LTE LITE 20 MOD 40/60/84	$2,099/$2,199/$2,389
LTE LITE 25 MOD 60/84/125	$2,579/$2,739/$2,939
LTE LITE 25C MOD 84/120	NEW
PROLINEA 3-25ZS MOD 1/40/40W	NEW
COMPAQ VGA MONO/VGA CLR	$169/$385

PROLINEA 3-25S MOD 1/84/84W/120/120W	NEW
PROLINEA 4-33 MOD 1/84/120/120W	NEW
DESKPRO 3-25I MOD 1/84/84W/120	NEW
DESKPRO 3-33I MOD 1/84/84W/120	NEW
DESKPRO 4-25IS MOD 1/84/84W/120	NEW
DESKPRO 4-33I MOD 1/120/120W/210	NEW
SYSTEM PRO LT 386-33 210/510	$3,855/$4,425
SYSTEM PRO LT 486SX-25 210/510	$4,745/$5,405
SYSTEM PRO LT 486-33 210/510	$5,955/$6,655
SYSTEMPRO 486 240/420/840	$7910/$8460/$11490
SYSTEMPRO 486-33 MOD 1e/680e/1020e/2040e	NEW
SYSTEMPRO LT 486-50 MHZ 210/510	$6,650/$7,450

CALL FOR UPGRADED SYSTEMS

PARTS

UPGRADE YOUR PORT III TO 386-20MHZ	$695
UPGRADE YOUR DP 286 TO 386-25MHZ	$899
UPGRADE YOUR DP 286E TO 386-20MHZ	$899
SLT KEYBOARD	$195
PORT III&386 KEYBOARDS	$195
***KEYBOARD F/DESKPROS	$145***
***1.2MB/1.44MB FDD 1/2HT&1/3HT	$119***
1.44MB FDD PORTABLE 286,386 & III	$225
2400 B INT. MODEM F/SLT	$179
2400 B F/PORT III&386/SLT 286&386	$275/$179
COMPAQ CASE S&E SYSTEMS	$149
4MB MEMORY MODULE F/LTE 286	$185
EXP. CHASSI F/PORT III&386	$195

ALL COMPAQ MOTHERBOARDS IN STOCK

TOSHIBA

T1600 20/40MB	$1,099/$1,199
T1200 XE 20/40MB	$1,239/1,439
T2000 40 MB	$1,559
T2000 SX 40/60MB	$1,729/$1,929
T2000 SXE 40/60MB	$1,959/$2,059
T2200 SX 80/60/40MB	$2,259/$2,159/$2,059
T4400 SX 80/120 MB	$2,949/$3,275
T5200C/T3200SXC	$3,379/$4,250
T3100SX 40 /80 MB	$1,545/$2,195
T5100 40/100 MB 386DX	$1,199/$1,499
T5200 100/200 MB	$2,739/$3,289
EXT. FD 1.2MB/2400B MODEM FOR LAPTOPS	$185

HEWLETT PACKARD

HP LASERJET III	$1,439
HP LASERJET IIIP W/POSTSCRIPT,2MB	$1,399
HP LASERJET IIP W/POSTSCIP,2.5 MB`	$1,149

LASER PRINTERS COME WITH TONER & CABLE

256K UPGRADE F/DESKJET	$159
SUPER FONT FOR DESKJET	$129

FONTS FOR HP LASER PRINTERS

***TAX FONT HP LASER PRINTERS	$129***
***POSTSCRIPT HP LASER PRINTERS	$276***
SCALEABLE FONT F/HP III FAMILY	$259
***SUPER FONT 150 IN 1	$175***
WORDPERFECT FONT/MS WORD FONT	$159/$169
PRO COLLECTION FONT CART	$159
EUROPEAN FONTS FOR HP LASERS	$195
BAR CODES AND MORE W/OCR A&B	$159
HP'S A-Z FONT CARTRIDGES	$155

ALL FONT CARTRIDGES IN STOCK

IBM POWERSUPPLIES

PS/2, MOD 80	$175
PS/2, MOD 60	$165
PS/2, MOD 65 SX	$199
PS/2, MOD 30-8086	$79
PS/2, MOD 30-286	$119
PS/2, MOD 55 SX	$139
PS/2, MOD 50Z./70	$115/199
PS/2, MOD 90 & 95	$299
PS/2, MOD P70	$299

COMPAQ POWERSUPPLIES

DESKPRO 286 & 386	$215
DESKPRO 286E,386S&386E	$175
DESKPRO 286N & 386N	$199
DESKPRO 386-33 & 486-33L	$325
SYSTEM PRO	$399
PORTABLE 286 & II	$229
PORTABLE III & 386	$229
PORTABLE PLUS	$195
SLT 286 & 386	$125

MAC POWERSUPPLIES

MACINTOSH LC & LCII	$225
MACINTOSH SE & SE/30	$239
MACINTOSH CX & CI	$295
MACINTOSH CI	$315
QUADRA 700	$399
MACINTOSH II,IIX & IIFX	$295
MACINTOSH SI	$295

CALL FOR PRICES ON MAC PARTS

SERVICE & REPAIR CENTER FOR NAME BRAND COMPUTERS

PAGE'S PCS

*386SX-25MHZ*4MB RAM* *1.44 MB & 1.2MB FLOPPY DRIVES* *42MB HARD DISK* *VGA 1024X768*DOS 5.0* *101KEYBOARD*2)SER & 1)PER*
$1125.00

*386DX-40MHZ*4MB RAM* *1.44 MB & 1.2MB FLOPPY DRIVES* *120MB HARD DISK* *VGA 1024X768*DOS 5.0* *101KEYBOARD*2)SER & 1)PER*
$1575.00

*486DX2-50MHZ*4MB RAM* *1.44 MB & 1.2MB FLOPPY DRIVES* *120MB HARD DISK* *VGA 1024X768*DOS 5.0* *101KEYBOARD*2)SER & 1)PER*
$2195.00

EPSON

LX 810	$169
FX 850/FX 1050	$281/$373
LQ 570/LQ 1070	$252/$360
LQ 870/LQ 1170	$420/$576
LQ 860/LQ 2550	$532/$849
DFX-5000/DFX-8000	$1,233/$2,076
EPL 7500/EPL 8000	$1,837/$1,260
ACTIONLASER II	$659
ACTIONPRINTER 3250	$209

WITH PREPAYMENT

NEC MONITOR BLOW OUT

PAGE
COMPUTER

4665 MELROSE AVE., LOS ANGELES, CA 90029
TEL: (213) 665-7777 FAX: (213) 660-0444
(800) 886-0055

VISA MASTERCARD AMERICAN EXPRESS

[illegible]
PRODUCTION. CALL FOR CURRENT PRICING

MEMORY!

H.Co. has America's largest selection of memory!

*And, we'll beat any USA advertised price.**

Memory is Cheap-but Only If you Know Where to Look. The Phantom Saves a Bundle on SIMMS Truth in advertising–what a concept....

PC Computing, April 1992

Math Coproccessors

IIT

Part #	Price
2C87-20	$79.00
3C87SX-16	109.00
3C87SX-20	119.00
3C87SX-25	129.00
3C87-25	149.00
3C87-33	159.00
3C87-40	189.00

IIT
3C87-33
IIT 1988

intel

Part #	Price
80487SX-20	$509.00
80387-33	219.00
80387SX-25	149.00
80387SX-20	139.00
80387SX-16	135.00
80387XL/XLT	99.00

Cyrix

Part #	Price
83S87S-20	$85.00
83D87-25	139.00
83D87-25	159.00
83D87-33	169.00
83D877-40	189.00

Laptop Memory

TOSHIBA

	Memory Added	Price
T1000SE/XE/LE	2MB	$139.00
T2000SX/SXE	4MB	269.00
	8MB	529.00
T3100SX,T3200SX,TSXL	2MB	109.00
	4MB	159.00
T1200EX,T1600,T3100E	2MB	109.00
T3200	3MB	169.00
T5100	2MB	109.00
T5200,T5200C,T8500SL	2MB	109.00
	8MB	349.00
T3100	2MB	239.00
T4400,T6400,T3300SL NEW	2MB	199.00
	4MB	319.00
T3300SL	6MB	495.00
T4400,T6400	8MB	729.00

IBM

	Memory Added	Price
L40SX	2MB Mem.	109.00
	4MB Mem.	169.00
	8MB Mem.	369.00

COMPAQ

	Memory Added	Price
Portable III	2MBKit	$129.00
Portable386/20	1MBKit	179.00
	4MBEXP	459.00
Portable LTE286	1MB BD	119.00
	2MB BD	149.00
	4MB BD	459.00
Portable LTE386S/20	1MB BD	179.00
	1MB BD	129.00
	4MB BD	279.00
SLT/286	1MB BD	99.00
	4MB BD	319.00
SLT/386	2MB BD	189.00
	4MB BD	249.00

NEC

	Memory Added	Price
UltraLite 286F	1MB MD	$229.00
	4MB MD	599.00
Prospeed SX/20	1MB BD	159.00
	4MB BD	439.00
Prospeed 286	1MB BD	139.00
386SX/16	2MB BD	259.00
	4MB BD	399.00
Ultralte III NEW	2MB	199.00
	4MB	429.00
	8MB	829.00
Ultralite SL/20 NEW	2MB	199.00

ZENITH

	Memory Added	Price
S.S./SX	2MB	$149.00
	ALPHA	
	2MB	149.00
	BETA	
	2MB EXP	159.00
Slimsport 286e	2MB CD	189.00
	4MB CD	429.00
Turbosport 386e	1MB BD	159.00
	4MB BD	495.00
Mastersport SX/SL	2MB	159.00

OTHERS

	Memory Added	Price
AST Ext. Notebook	1MB SIMM	$79.00
	4MB SIMM	209.00
Sharp PC-6220 Notebook	1MB BD	139.00
TiTM2000	1MB BD	129.00
TiTM3000	2MB Kit	129.00
Everex Templ LX	2MB MD	159.00
Panasonic CF-170,270, 370	1MB CD	129.00
Epson NB3S	1MB UPG	159.00
	4MB UPG	399.00
Tandon NB386	2MB	99.00
	8MB	379.00

DeskTop Memory Upgrades

Apple

	Memory Added	Price
Mac Classic	1-3MBBD	$79.00
	2MB Kit	79.00
Mac IIci,IIsi	1MB Kit	69.00
Mac IIsi	2MB Kit	149.00
Mac Ici,IIsi	4MB Kit	199.00
Mac IIsi	8MB Kit	469.00
Mac IIci,IIsi	16MBKit	599.00
Mac IIfx	4MB Kit	189.00
	16MB Kit	669.00
Mac SE,SE 30, Plus, II, IIcx,IIx	4MB Kit	189.00

AST

	Memory Added	Price
Bravo 486/25	2MB Kit	119.00
	8MB Kit	329.00
Prem 386/SX16 & 20, 25, 33	8MB Kit	329.00
Prem II SX/20	1MB Kit	59.00
SX/16	4MB Kit	159.00
Cupid Exp.	0K BD	249.00
Premium 386C	1MB Kit	59.00
WKST & Bravo	4MB Kit	189.00
Premium 286 Fastram	512-2MB BD	289.00
FastramKit	512Upg.	55.00
Premium 386	1MB Kit	59.00
	4MB Kit	229.00

COMPAQ

	Memory Added	Price
DP 386/33,486/25,33 & Systemp	2MB MD	$119.00
	8MB MD	319.00
DP 386/20e,20 & 25e,25	1MB BD	119.00
	4MB BD	269.00
	1MB MD	89.00
	4MB MD	169.00
DP-386 S/16	1MB BD	119.00
	4MB BD	269.00
	1MB MD	89.00
	4MB MD	169.00
DP 286N, 386N, & 386SX/20	1MB MD	59.00
	2MB MD	99.00
	4MB MD	179.00
	OK BD	89.00
DP 386/16	1 MB BD	239.00
	2 MB BD	479.00
	8 MB BD	799.00

IBM

Works w/Model	Price
50Z,55SX,70-E61, 70-121,P-70	$ 50.00
50Z,55SX,70-E61, 70-121,P-70	90.00
55SX,65SX,55LS, 34F3077	169.00
70-A21,A61,B21, B61	90.00
30/286	90.00
PS/1	99.00
80-041	79.00
80-111,31	109.00
80-A21,A31,A61	199.00
90,95	259.00
70,80	299.00
50 & 60 Series	279.00
50 & 60	249.00
PS/2 Model 57SX,90,95 8MB MD	369.00

CALL FOR RISC SYSTEM 6000 MEMORY!!

NEC

	Memory Added	Price
P.M SX Plus	1MB BD	$169.00
	4MB BD	539.00
	8MB BD	1,059.00
P.M.SX/20	2MBCPU UPG.	179.00
	2MB UPG. & Exp.	259.00
	2MB UPG. Kit	119.00
P.M.SX/16	2-8MB Exp.	209.00
	2MB UPG. Kit	119.00
P.M.386/20	2MB MD	339.00
	8MB MD	859.00
P.M.386/25S	2MB Kit	179.00
	8MB Kit	599.00
P.M.386/25	2MB MD	339.00
	8MB MD	859.00
	8MB Repl BD	1,099.00
P.M.386/33E&486/25E	2MB MD	209.00

ZENITH

	Memory Added	Price
Z-386/20, 25,33,33e	1MB SM	$ 59.00
	2MBSM	99.00
	4MBSM	179.00
Z-386SX, 286-LP+,Z-LS	2MBSM	99.00

WE CARRY MEMORY FOR ALL COMPUTERS AND LASER PRINTERS AT LOWEST PRICES!

Laser Printer Memory

Model	Memory Added	PRICE
H.P.Laserjet IIP, III, IIID, IIIP, II, IID	2MB Module	$119.00
	4MB Module	189.00
H.P.Laserjet IIIsi	1MB Module	69.00
	4MB Module	159.00
H.P.Deskjet	256K Module	59.00
IBM 4019,4019e	2MB Module	119.00
	3.5MB Module	189.00
OKI Laser 400	1MB Module	89.00
	2MB Module	119.00
OKI Laser 800,820	2MB Module	129.00
	4MB Module	199.00
Panasonic 4450	1MB Module	119.00
Panasonic 4420, 44501	2MB Module	119.00
	4MB Module	199.00
Panasonic 4455	2MB Module	159.00
Epson EPL6000	2MB Module	119.00
	4MB Module	209.00
Epson Action Laser II	2MB Module	199.00
	4MB Module	299.00
T.I. MicroLaser, XL	1MB Module	69.00

Chips/SIMMs

STANDARD SIMMS

PART#	PRICE
256X8-10	$16.00
256X9-80	14.00
1X8-80	40.00
1X9-80	40.00
1X9-70	42.00
4X9-80	135.00
4X8-80	130.00

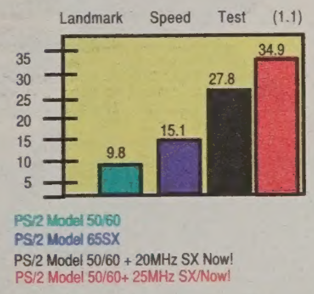
DRAM

PART#	PRICE
1X1-80	$4.50
256-80	1.80
256-70	2.00
256X4-80	4.50
4464-80	2.50
4464-10	2.00

KINGSTON

Convert your 286 to a 386

The SX/NOW Works with: IBM, AST, Compaq, Epson, HP, NEC, AGI



KINGSTON SX/NOW CPU Upgrades

20 Mhz	335.00
25 Mhz	385.00

All Products 100% Guaranteed!

PURCHASE ORDERS ACCEPTED

from universities, government & qualified firms!
International orders & FAX orders accepted

H.Co.
Computer Products
17922 Sky Park Circle #F
Irvine, CA 92714

Orders 1-800-726-2477
Tech Support 1-714-833-3364
Information 1-714-833-3222
FAX 1-714-833-3389
GermanyOffice: ThomasBohlmann
Charlottenburgerufer 18. 1000 Berlin 10
TEL: 030/3410478 FAX: 030/3426310

TERMS:

1. PO's accepted from universities, government agencies & qualified firms.
2. VISA,MC,AMEX,COD,pre-paid & apprived PO's only, please.
3. FAX orders accepted. Internatinal orders accepted.
4. 15% Restocking fee on returns within 30 days. No refunds after 30 days.
5. No Software returns.

OPEN WEEKENDS

---

* Any legitimate advertised price from companies with new merchandise actually in stock. Offer excludes Chips and SIMMS. Trademarks are the property of their respective companies. Prices are subject to change.

1992 H.Co. Computer Products.

The Great American Trade Show Test

Or

How To Succeed In Business Without Really Trying

BY JOHN C. DVORAK

What is your trade show IQ? Some people enjoy trade shows. Some people hate them. If you're in any sort of business you must attend them. In the computer industry there are a slug of trade shows scattered around the country and throughout the year. There's one in Atlanta one week, Los Angeles the next. A couple weeks ago there was PC Expo in New York. In a few more weeks there will be Networld, then COMDEX. After awhile we all become experts on the subject of trade shows more than on the subject of computers.

At some big shows such as Expo or COMDEX or even Macworld Expo, most people attend to schmooze and say hi to people they only see once a year, usually at a show. Most of the new products this year have already been shown elsewhere, orders already taken. The Winter COMDEX is a "pure" trade show feeding on its own success. It's one of the few trade shows where parties are of primary importance and it's not a sin to have a little fun.

Most people take trade shows too seriously. Here's a valuable trade show IQ test that I worked up so you can test yourself and see how you rate as a trade show attendee.

DVORAK'S LAST COLUMN

1. Before going to the trade show you must plan ahead. Which of the following best applies to your planning?

a) Find out who else might be there and make appointments to see them in advance. **b)** Wait for people to call you to make the appointments. **c)** Wait until the last minute to make appointments. **d)** Tell everyone your calendar is full and make *no* appointments.

2. You have to stay someplace. When deciding how much to spend on a hotel do you:

a) Find a high-quality inexpensive hotel and book months in advance? **b)** Get a cheap room in a luxury hotel and book months in advance? **c)** Get what you can at the last minute? **d)** Find a suite and tell the bookkeepers that's all that was available?

© 1992 by John C. Dvorak. All rights reserved. *John C. Dvorak graduated from the University of California. He is a contributing editor of PC Magazine and MacUser, and is considered by many to epitomize the contrarian view of things—a charge that he vehemently denies. Dvorak's motto is: If you have nothing nice to say, then don't say anything at all.*

3. Which of the following best describes your morning while you're attending a trade show?

a) Get up at 7. Shower. Read the morning paper. Go to an 8 am sales meeting or product introduction breakfast. **b)** Get up at 7. Shower. Order room service and have a big breakfast. Review previous day's notes and the day's schedule. **c)** Get up at 8. Shower. Have a continental breakfast. Read the paper and go straight to the show. **d)** Sleep in until 11. Tell the boss you had appointments all morning.

4. How do you like to approach your first encounter with the exhibit halls? Which of the following best describes your method?

a) You start by sitting down with the guide to the show and with your Day-Timer to carefully map out the day's activities. **b)** Go straight onto the show floor to see what seems important and new. **c)** Go onto the floor and ask people if they've seen anything interesting, then go there. **d)** Look for the booths with the cutest hostesses and go there.

5. When in a booth or exhibit area do you mostly:

a) Find a company representative and have him show you what's important? **b)** Wander around the area and read each blurb on the walls near the products? **c)** Pick up some literature and leave a card? **d)** Chat with a cute booth hostess about the best night clubs in town?

6. After the show closes for the day do you mostly:

a) Go back to the hotel and review what you did that day and make preliminary plans for tomorrow? **b)** Discuss the show with a partner? **c)** Go back to the hotel and watch TV? **d)** Go directly to the hotel events board and find where the hospitality suites are, and then go there to get free drinks?

7. What best describes your attitude towards drinking at a hospitality suite?

a) Order Calistoga water or Perrier with a twist and make it known you have to be clear headed. After all, tomorrow is a busy day. **b)** Have one beer then leave. **c)** Have a couple of glasses of wine. **d)** Look into the bar area and find the most expensive Cognac they have. Order it. Minimally, if they don't have a decent X.O., complain to the party giver.

8. When a hospitality suite has food do you:

a) Have a few pieces of the most healthy foods highlighting the celery and dip? **b)** Eat only cheese? **c)** Eat some lean roast beef? **d)** Pig out on lobster and crab?

9. When invited to a big evening event such as a stage show or rock and roll party, what do you do?

a) Decline the invitation because there are better ways to spend your time. **b)** Go to the party in hopes that you can make a few business contacts. **c)** Go to the party to unwind. **d)** See if you can get more invitations and hand them out to people as though you're a big shot.

10. After a big trade show is over and you return home, do you:

a) Review the show with associates? File the brochures and make notes on who to call for follow up? **b)** Go back to work, write a short memo about the show, and brief other employees? **c)** Put the show out of your mind for a few days and place the literature in a basket to be read later? **d)** Moan and groan about how tough the show was and how you need a vacation?

Scoring: For each answer where you said "A," give yourself 10 points. "B" scores 6, "C" scores 4, and "D" scores zero.

•If you scored 100 points, you are one heck of an employee. You take the job so seriously that it is doubtful whether you really need to go to a trade show. In fact, you may consider another line of work. You must be bored stiff.

•80–100 means you show some signs of improvement over the perfect score. At least you think about something other than business once in a while.

•50–80 is the normal range for the modern show attendee. You are simply normal if you fall into this category.

•4–50 means you try your best to mix business with pleasure.

•A score of zero indicates you are one heck of a party animal. Congratulations. If anyone has fun at a trade show, it's you.■

Fry's ELECTRONICS

WONDERFUL WORLD OF COMPUTERS... ...AND MORE!

ONE STOP SHOPPING FOR THE HI TECH PROFESSIONAL!

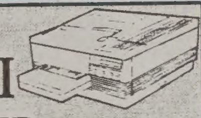
50MHz 486

64K CACHE MINI TOWER SYSTEM

80486DX2 50MHz CPU
1MB RAM Expandable to 32MB
64K Cache Expandable to 256K
IDE 2 Hard/2 Floppy Controller
5.25-1.2MB Floppy Drive
101-Key Keyboard • Clock/Calendar #1687480

$999

WE HAVE OVER 10,000 ELECTRONIC ITEMS AT ULTRA-LOW PRICES!



HEWLETT PACKARD Authorized Dealer

LaserJet III

PCL-5 PRINTER

Language with Resolution Enhancement™
Means Built In SCALABLE Fonts!
Font Rotation-Landscape Mode
1MB RAM • 8 Pages Per Minute
#1496561

SPRING INTO OUR BEST PRICE YET!!

COMPUTERS

HARDWARE AND SOFTWARE

IBM • HEWLETT PACKARD
PANASONIC • EPSON • TOSHIBA
SONY • GOLDSTAR • NEC • EVEREX
HAYES • 3M • PRACTICAL PERIPHERALS
MAXTOR • LOGITECH • FUJI • MAXELL
CONNER • ORCHID • MICROSOFT
BORLAND • SYMANTEC • CITIZEN
LOTUS AND MANY MORE!

SEE FOR YOURSELF... COMPUTERS, MONITORS AND PRINTERS ARE ON DISPLAY!

FOR MAC II, SE & MAC PLUS 30 PIN PACKAGE

1MEG X 8-80NS SIMM MODULE	4MEG X 8-80NS SIMM MODULE
$29.99	$119.99
#1493568	#1523085

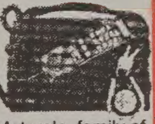
FOR IBM COMPATIBLES

1MEG X 9-80NS SIMM MODULE	4MEG X 9-80NS SIMM MODULE
$32.99	$129.99
#1436367	#1530292

AUDIO VIDEO

VCRs • Camcorders • Sega
Hi-Resolution TV Monitors
CD Players • Large Screen TV's
Personal Audio • Calculators
Telephones • Stereo Systems
and Components

MOTOROLA



CELLULAR TOTE PHONE

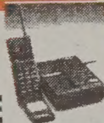
This new addition to the Motorola family of cellular phones offer 30 number memory and 3 full watts of power for only...

Limit 1 per customer
No sales to dealers or resellers.

$239.95

S-2826A
#1666944

Panasonic 900MHz CORDLESS PHONE



It's simply incredible! Panasonic has developed an advanced cordless phone that operates on 902/928 MHz for outstanding performance. Besides the advantages of mobility and clarity this model has an impressive list of features- an intercom with 2-way paging, 30 channel auto scanning, auto speed dialer, private digital security and much more! Now only....

$448

KX-T9000
#1677122

ELECTRONIC COMPONENTS

OVER 5,000 DIFFERENT ITEMS:

ICS • MEMORY • MICROPROCESSORS • TTL • FAST • HCT • CMOS • LS • ALS • AS • S • LINEAR DISCRETES
RESISTORS • SOCKETS • CONNECTORS • CRYSTALS • OSCILLATORS
A VAST ASSORTMENT OF TOOLS AND ACCESSORIES FOR THE ELECTRONIC PROFESSIONAL AND ENTHUSIAST!

Factory Fresh
100% Guaranteed

SERVICE

7 DAYS A WEEK

AT/386/486 SYSTEMS
DIAGNOSTICS AND REPAIR
MEMORY & DRIVE INSTALLATIONS
LASER & DOR MATRIX PRINTERS
REPAIR • NOVELL NETWORK CONFIGURATIONS

CONVENIENCE

FAST ONE-STOP SHOPPING

A WIDE SELECTION OF MAGAZINES, SOFT DRINKS, SNACKS, CANDY, HEALTH AND BEAUTY ITEMS, STATIONARY AND OFFICE SUPPLIES WITH ALL THE LEADING BRANDS ON ALL THE MOST USED AND WANTED PRODUCTS FOR YOUR EVERYDAY NEEDS

Home of Fast, Friendly, Courteous Service

Fry's ELECTRONICS

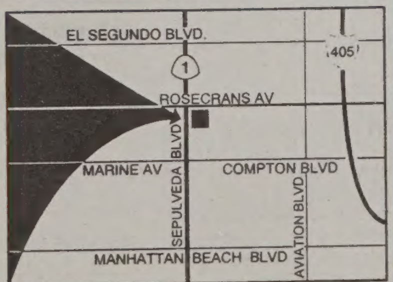
Home of Fast, Friendly, Courteous Service

STORE HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA AND MASTERCARD

MANHATTAN BEACH

3600 Sepulveda Blvd.
(310) 364-FRYS (3797)
CORP. P.O. FAX (310) 364-3700



Prices good through August 10, 1992

Limit Rights Reserved
Not Responsible For
Typographical Errors

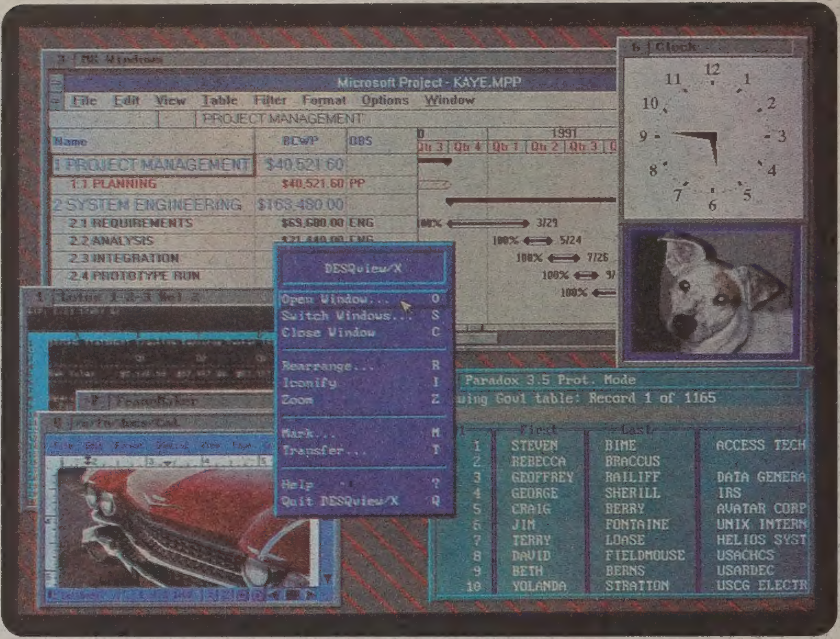
Turn your measly PC into a graphical workstation.

Looks the Way You Want

DESQview/X supports sculptured menus, customizable backgrounds, graphic buttons for launching programs or sets of programs, icons and online context-sensitive help to make computing easy and fun. If you are a DESQview user, you'll find DESQview/X very familiar, with an improved look.

Multitasks DOS & Windows Programs

Quarterdeck is the acknowledged pioneer in multitasking and DESQview/X gives you high performance multitasking, with graphical DOS and MS-Windows programs running side-by-side.



Name	BCWP	OBS
1 PROJECT MANAGEMENT	$40,521.60	
1.1 PLANNING	$40,521.60	PP
2 SYSTEM ENGINEERING	$163,480.00	
2.1 REQUIREMENTS	$69,680.00	ENG
2.2 ANALYSIS	$21,440.00	ENG
2.3 INTEGRATION		
2.4 PROTOTYPE RUN		

Viewing Govt table: Record 1 of 1165

	First	Last	
1	STEVEN	BIME	ACCESS TECH
2	REBECCA	BRACCUS	
3	GEOFFREY	RAILIFF	DATA GENERA
4	GEORGE	SHERILL	IRS
5	CRAIG	BERRY	AVATAR CORP
6	JIM	FONTAINE	UNIX INTERN
7	TERRY	LOASE	HELIOS SYST
8	DAVID	FIELDMOUSE	USACHCS
9	BETH	BERNS	USARDEC
10	YOLANDA	STRATTON	USCG ELECTR

Works the Way You Want

Move immediately from one program to the next. Mark and transfer text. Define keystroke or button-driven macros. Set up sets of programs to open together at a keystroke or mouse click so you're ready to work on your projects. You can change menus, add sub-menus. Change commands. What's more, you can specify window size and color. And if you are using DOS text programs, you can set them up so that the font changes size as you change the size of the window. We call this feature scalable DOS windows (see the Lotus window on the right side of the screen).

DESQview/X is a powerful, efficient environment for increasing productivity.

DESQview/X gives you an efficient graphical multitasking windowing environment with a doorway to the future

Serious PC users, rejoice.

At last. For everyone waiting for a GUI (graphical user interface) that doesn't demand a major sacrifice in speed and hardware overhead, we present The Answer.

DESQview/X is a joy to use, with its editable pop-up menus, customizable backgrounds and icons. With its built-in Adobe Type Manager, it gives you highly readable scalable DOS windows. It gives you mouse control and keyboard equivalents for every command. It lets you define keystroke macros to speed repetitive tasks. File management and mark and transfer. It gives you 8514/A, Super VGA and DGIS high resolution graphics support for great detail and more windows. Plus maximum memory usage with our best-selling QEMM-386 memory manager—included with DESQview/X.

1991 BYTE AWARDS OF EXCELLENCE

And for all this power, it needs only a 386 or 486 PC with 4MB RAM and 40MB hard disk.

Welcome to the windowing, multitasking graphical user environment that transforms the software you already own.

Yes! Please Send:

Qty	Product	5-1/4	3-1/2	Each	Totals
	DESQview/X			$275.00	
	DESQview/X Network Mgr. (TCP/IP)			$200.00	
	OPEN LOOK interface			$200.00	
	OSF/Motif interface			$250.00	
	Shipping & Handling $10 (Canada & USA only)				
	California Residents add 8.25%				
	Grand Total				

Payment method
☐Visa ☐MasterCard Expires ____/____
Card # ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Or call (800) 354-3222 for faster service

Name ____________________
Address ____________________
City ____________________ State ____ Zip ________

Please allow 3 weeks for delivery

Registered users of Quarterdeck products are eligible for a special offer. Call (800) 354-3222 7AM-5PM PST.

Quarterdeck

Quarterdeck Office Systems, 150 Pico Boulevard, Santa Monica, CA 90405 (310) 392-9851 Fax (310) 314-4219

©1992 Quarterdeck Office Systems. Trademarks are property of their respective owners.

Computerland
Anaheim (714) 535-3747

Compuclassics
Canoga Park (818) 347-7500

Software Supermarket
Los Angeles (213) 477-5122

Egghead
Los Angeles (213) 477-1577

Dustin America
Woodland Hills (818) 710-9174
PCS
Oxnard (805) 984-9656
Fry's Electronics
Manhattan Beach (310) 364-3797

Comp USA
Culver City (213) 390-9993
Torrance (213) 540-0593
Fountain Valley (714) 965-0580
Software Etc.
Northridge (818) 993-9167

Super Computer Center
Santa Ana (714) 754-1166
Torrance (213) 542-8977
Microage
Century City (213) 552-2211